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American Vegetable Grower

and MARKET GROWERS JOURNAL

Cool Facts About
CUCUMBERS



Forecasting Diseases • Granular Herbicides • Paper Mulch

"Kittitas Valley soil is mean on tires...that's why
WE'RE FIRESTONE 100%!"



Firestone Dealer Harvey Vaughan (left) talks tires with four of the Busch brothers—John, George, Sam and Chris.

says John Busch, Busch Brothers, Ellensburg, Washington. "Firestone tractor tires wear like iron. Our soil is mean on tires, and Firestones can take more abuse and give longer wear than any tire we've seen around here. Our Ellensburg Firestone Dealer, Harvey Vaughan, knows tires and knows how to service them. You bet we're on Firestones 100%!"

Firestone's new All Traction Champion* tractor tire gives you longer service and top performance on all farm jobs. Tough tractor tire tests prove Firestone S/F (Shock-Fortified) cord gives the tire greater impact resistance. Its tread is built with Firestone Rubber-X, the longest wearing rubber ever used in Firestone tires. The flat tread contour, with curved and tapered traction bars, cleans easily and gives you positive grip in any soil condition. And a special Firestone

Rubber-X compound is used exclusively in tractor tire sidewalls to resist aging, cracking and costly flex damage.

See your Firestone Dealer or Store and find out how Firestone Tractor Tires give you extra service at no extra cost. See Firestone's complete line of farm tires. And remember, Firestone's Free New Tire Loaner Service keeps your equipment rolling while your Firestone Dealer or Store retreads or repairs your old tractor tires.



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FRONT TRACTOR TIRES

give you easier steering
better cleaning • longer wear

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Firestone

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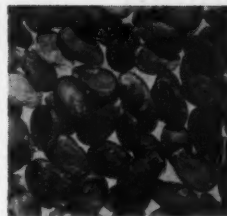
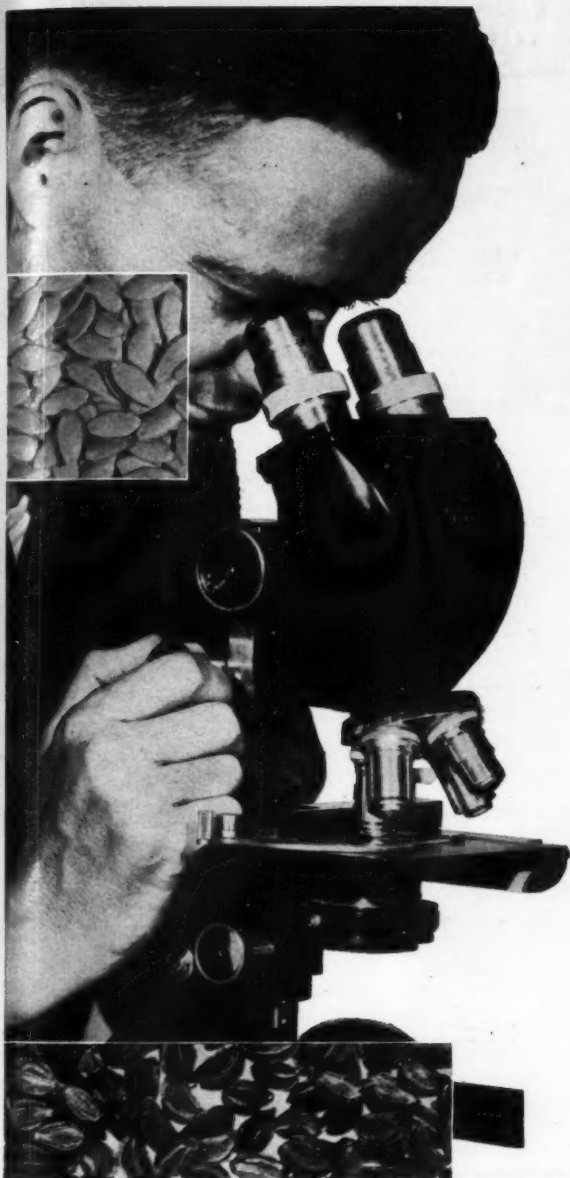
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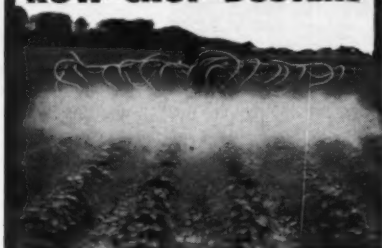
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Chemical Corporation

American Vegetable Grower



Reg. U.S. Pat. Off.
Commercial Vegetable Grower
Market Growers Journal

VOL. 7

No. 5

MAY, 1959

Cover photograph by Bob Taylor shows
harvesting of cucumbers

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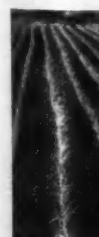
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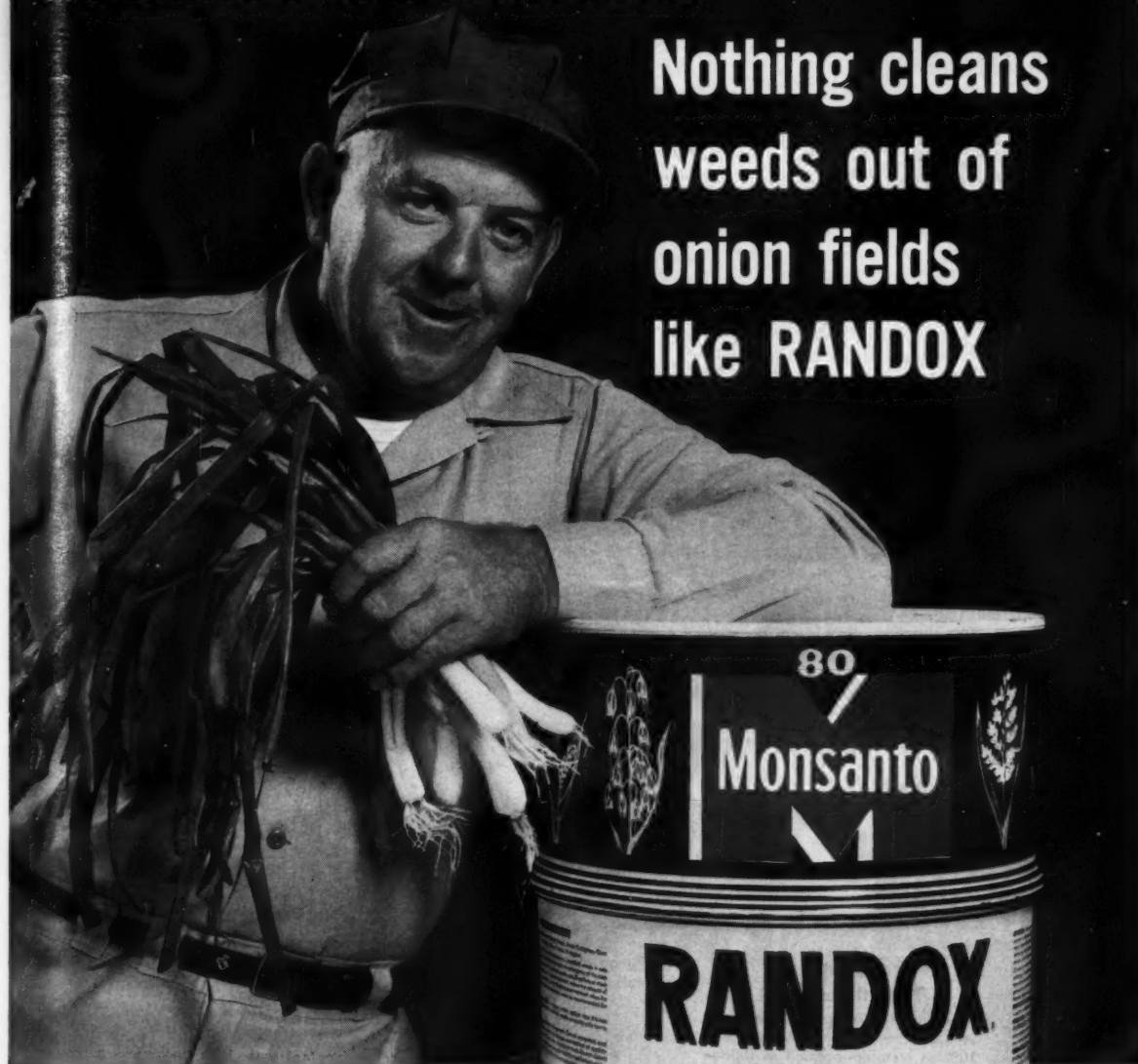
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Sprayed wil
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treated rows
crows to pull
MAY, 1959

MONSANTO'S "RED" EMM SAYS:

Nothing cleans
weeds out of
onion fields
like RANDOX



Just spray Monsanto's Randox® weed killer on muck soils when you plant or when you set your transplants. It kills off annual grasses as they sprout, practically ends all hand-weeding, and can save up to \$125 an acre on labor costs. Safe and easy to use, Randox won't build up in your muck soil, won't harm nearby crops when you spray. Before

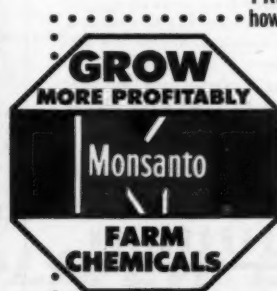
you plant your next crop, ask your Monsanto Dealer about Randox weed control in onions.

RANDOX KILLS . . . annual bluegrass, barnyard grass, cheat, crab grass, sandbur, giant foxtail, yellow foxtail, green foxtail, goose grass, water grass, pigweed, carpetweed, and stink grass.

FREE! Randox-in-onions guide shows you how to make more money on muck-grown onions.



Sprayed with Randox at planting time, onion rows at left remain clean, free of weeds. Untreated rows at right need costly hand-labor crews to pull weeds.



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Tri-Basic COPPER SULFATE

A chemically stable copper fungicide containing not less than 53% metallic copper . . . for spraying or dusting truck and citrus crops. Especially effective in controlling persistent fungus diseases through application of Tri-Basic Copper Sulfate before fungus attacks.



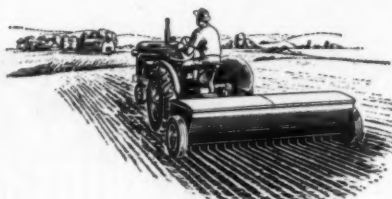
COP-O-ZINK (A Neutral Copper-Zinc Fungicide)

For disease control and prevention. Particularly effective on potatoes. Also on many vegetable and fruit crops. Cop-O-Zink is excellent for correcting Copper and Zinc deficiencies and for stimulating plant growth. Contains 48% Copper and 4% Zinc. Applied to foliage in spray or dust form.



Fungicides and Agricultural Chemicals

There's a superior TC product to correct most nutritional deficiencies and TRI-BASIC COPPER SULFATE to prevent and control certain persistent fungus diseases.



Correct NUTRITIONAL DEFICIENCIES

NU-IRON (Nutritional Iron)

A neutral Iron compound containing 30% Iron as metallic. Chelated Iron 10% as metallic—applied to foliage of plants for correction of Iron deficiencies.

NU-Z (Nutritional Zinc)

Nu-Z contains 52% metallic zinc. Applied directly to the plant in spray or dust form . . . stimulates plant growth and corrects zinc deficiencies.

NU-MANESE (Manganese Oxide)

An extremely effective nutritional manganese product for correcting manganese deficiencies due to low manganese content of the soil . . . applied as a spray or dust to the foliage, direct broadcast to the soil or in mixed fertilizers.

For information on
These Fungicide and
Nutritional Products,
Write, Wire or Phone Us.



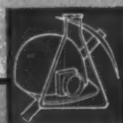
DUST MIXTURES

Tennessee's Nu-Z, Nu-Iron, and Tri-Basic Copper Sulfate are especially suited for use in preparing nutritional and fungicidal spray and dust mixtures.

ES-MIN-EL

The ESsential MINeral ELEments—contains Manganese, Copper, Iron, Zinc, Boron and Magnesium, all essential to healthy, productive soil. Fruits and vegetables rich in vitamins cannot grow in soil poor in minerals. For soil application. Es-Min-El in spray or dust form for direct application to the plants is also available. Contains nutritional Manganese, Zinc and Copper.

WE WILL CUSTOM MIX MINERAL MIXTURES TO YOUR OWN SPECIFICATIONS IN LARGE OR SMALL QUANTITIES.



TENNESSEE CORPORATION

617-29 Grant Building, Atlanta, Georgia

LETTERS TO THE EDITOR

New Southern Pea Variety

Dear Editor:

In the March issue of AMERICAN VEGETABLE GROWER there is a note on a new southern pea variety. I would like to make several corrections of the note as it appeared.

Dr. A. P. Lorz and L. H. Halsey have a variety of cowpeas that will be released by the station when a sufficient quantity of seed has been secured. The variety is as yet unnamed and the equality of yield with Cabbage and California Blackeye No. 5 applies to Florida conditions only. We would expect that it might perform differently in other sections of the country. This is because, in Florida, the greatest yields from this strain or variety have been secured when it is planted in late summer or early fall.

We shall be glad to inform you when this variety is officially released and where seed of it may then be secured.
F. S. Jamison
Gainesville, Fla.

Picture Squash

Dear Editor:

On several occasions I have seen pictures of giant squashes in AMERICAN VEGETABLE GROWER. I am positive that this is the first picture of a squash that you have received that was engraved in the tender stage while being grown and painted with a landscape afterwards (see cut).



This is a Banana squash that I sent to a friend of mine who has a grocery store in Cleveland, Ohio.
Minneapolis, Minn.

Pat Yates

Witloof Chicory Specialist

Dear Editor:

I am interested in getting in touch with a farmer in the United States who grows endive or would like to learn how to grow endive, especially Witloof Belge (Witloof chicory). Having been practicing this type of farming during the past 10 years in Belgium, I would like to come to the United States to go into farming of endive with Americans on their soil.

To obtain the best results, it is necessary to farm in a clay and sandy soil where the temperature does not go below -15° to -18° Centigrade (about 5° F.—Ed.)

I would very much like to communicate with growers interested in the cultivation of endive.

Paris, France Marcel Van Rompaey
Any reader interested in writing to Mr. Van Rompaey may address him at Ambassade de Belgique, 25 Rue de Surenne, Paris VIII, France.—Ed.

AMERICAN VEGETABLE GROWER

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MAY, 1959



New Oliver Air-Mist quality doubles **TEAMED-POWER** profits

You'll watch quality grow—and your profit margin will grow with each passing month when you trade in your outmoded sprayer for the all-new Oliver 1-side Air-Mist. Then when you match it with a brand-new 770, you'll have TEAMED-POWER and *double profits*.

THE TRACTOR: It's the just-right sized Oliver in the 4-plow class. It has smooth 6-cylinder power with the engine that saves the most in your area—using gasoline, diesel or LP-gas fuel. But that isn't all. It's the 770's usable power that counts most—extra pull on the drawbar and with Oliver's Independently Controlled PTO...Power-Booster Drive that gives extra lugging ability and 12 forward speeds at the flick of a lever. Or add power steering, Power-Traction Hitch, Powerjuster rear wheels, exclusive "Hydraulic" implement controls.

Then match your 770 with...

THE SPRAYER: It's the just-right pest control machine for complete, deep-down coverage. It's the all-new Oliver 1-side Air-Mist sprayer with full 210° head rotation. It swings to either side at the flick of a lever, then covers a full 60-foot swath with time-saving, water-saving concentrate sprays. The husky 36 h.p., air-cooled engine is hooked directly to the fan—no V-belts to wear out or replace. All controls (air vane adjustment, throttle, spray valve and head rotation) are easily reached from your tractor seat. Available as an attachment or as a complete sprayer unit.

This year get two bonuses—one for quality, one for economy. Ask for a TEAMED-POWER Air-Mist demonstration on your own farm. Low-cost "Pay-as-You-Produce" financing available.



THE OLIVER CORPORATION, 400 West Madison St., Chicago 6, Ill.

See Your **OLIVER DEALER** and See

Get positive control of

- aphids
- leaf miners
- onion maggots
- vinegar flies (*drosophila* sp.)

and a wide range of other insects attacking vegetable crops with

DIAZINON®

INSECTICIDE

DIAZINON insecticide is effective against many insects which have become difficult or impossible to control with other pesticides.

DIAZINON insecticide's long-lasting, broad-spectrum

action gives you more economy and better control for your insecticide dollar.

Get DIAZINON insecticide today from your favorite farm supply dealer.



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GROWER

Field Survey Observations	Con- firmation
PLANT REPORT Source Of	
Organization	

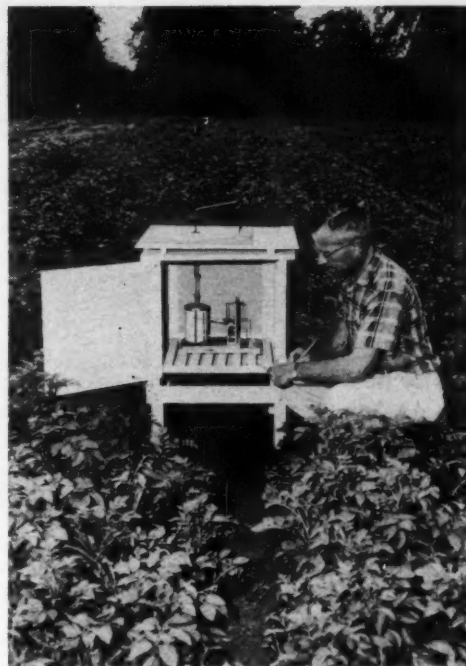
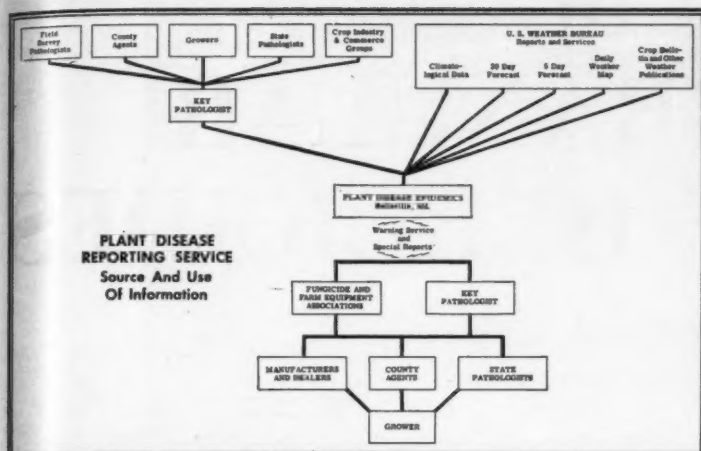
DIS- FO

By F
U.S. D

WE'RE plant weather!

Over the covered some weather conditions occurrence knowledge forecasting that cold means that Northeast little trouble case this year

This feature six months back to 19 USDA plant relationships and Now, as the ing bacteri peratures February in making



DISEASE FORECASTING . . .

How It Helps Growers Curb Losses

Winter temperature records are used to forecast occurrence of blight, mildew, bacterial wilt

By **PAUL R. MILLER**
U.S. Department of Agriculture

WE'RE learning how to fight plant diseases by studying the weather!

Over the years, scientists have uncovered some important ties between weather conditions and plant disease occurrence; and, out of this growing knowledge has come plant disease forecasting. We know, for example, that cold weather this past winter means that sweet corn growers in the Northeast and Midwest need to fear little trouble from bacterial wilt disease this year.

This feat of predicting a disease six months before it strikes dates back to 1934 when N. E. Stevens, a USDA plant pathologist, noted the relationship between winter temperatures and bacterial wilt occurrence. Now, as then, his formula for predicting bacterial wilt from the mean temperatures of December, January, and February is depended on by growers in making their planting decisions.

When Dr. Stevens first set down his formula, he didn't know *why* it worked; only that it was supported by his long-time observations of weather and wilt. Later on, other scientists learned that extensive cold weather kills out the corn flea beetle, carrier and winter reservoir of the bacterial wilt organism.

A similar degree of accuracy—although with not so much advance notice—helps growers to protect their tomatoes and potatoes from late blight, and their lima bean and cucurbit crops from downy mildew.

Late blight and downy mildew are already getting the careful attention of forecasters, both diseases having put in an early appearance in the winter vegetable fields of Florida. Late blight was reported infecting potatoes and tomatoes by January 2 in the Fort Myers area. Downy mildew infection in cucumbers was reported January 8 from the area. Both diseases will be moving north with the planting season.

In these, as with bacterial wilt, the

weather is a critical factor in disease forecasting. In predicting late blight in the Northeast, for example, research has shown that a definite combination of cool weather and rainfall is required to make this fungus dangerous. In the Middle West and South, the same disease is predicted on a basis of temperature and humidity (rather than rainfall). Ten days of cool and damp or rainy weather practically assures an outbreak of late blight within the following week or two.

The degree of precision required in making predictions such as these implies that plant disease forecasters must not only interpret the factors of weather correctly, but that they must also know their plant diseases—how they develop, and the time needed for the development of each stage in the disease cycle.

Downy mildew forecasting has helped to keep lima bean growers in the Middle Atlantic states in business since 1952. As with late blight, (Continued on page 38)

Advantages of GRANULAR HERBICIDES

The new granular forms of weed control chemicals are easy to apply, eliminate costly trips to water supply

By R. D. SWEET

Cornell University, Ithaca, N. Y.

VEGETABLE growers will be offered herbicides in the new granular forms this year. In most cases these offerings will be on a trial basis to help them get acquainted with the advantages of this new product. Modest marketing in 1959 also should help industry to learn how to best formulate, store, ship, and price this new-comer to the agricultural chemical business.

Five years ago when Dr. L. L. Danielson first reported research in Virginia with dry carriers for herbicides his project was met by his colleagues with slightly raised eyebrows. However, now that others have tried his suggestions, Dr. Danielson, who is now a USDA plant physiologist, finds many scientists who are even stronger than he in advocating granulars.

Many research workers have been testing granulars for the past several years and almost unanimously the reports show that herbicide performance is equal to that of water sprays. In adverse weather situations they may actually outperform water sprays. Most common herbicides have been thoroughly checked and the results indicate almost every major type shows these good results.

Once the problem of performance was settled in the minds of research workers, they set about looking into the practical considerations of everyday commercial usage of granulars. Anyone who has operated a sprayer knows that there are many aggravations associated with this job. This is particularly true with herbicides where uniform accurate coverage is a must.

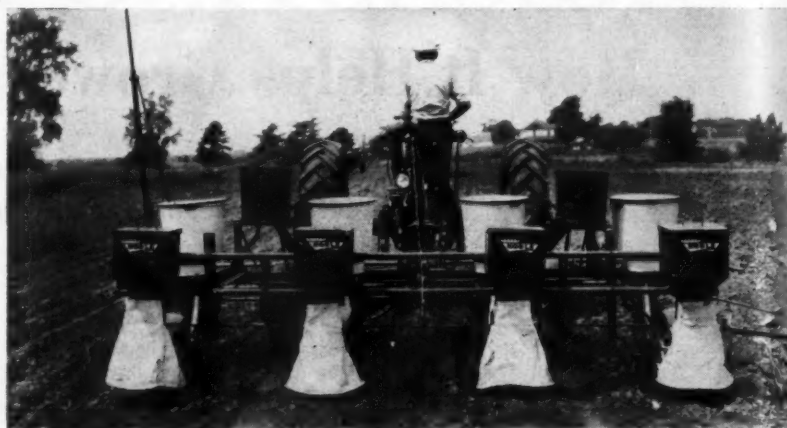
Unfortunately, growers are rarely set up to do an efficient job of servicing their sprayers with clean water. Sometimes ponds or creeks are used because they are convenient, but too

often growers are careless about using sufficiently fine-meshed screens to eliminate nozzle plugging. In some areas no convenient source of water is available near the field where the spraying is being done. This means making long trips back to a central water supply or taking special water tanks out to the fields. Either method is costly.

Granulars not only eliminate the



Granular herbicide applicator model made by the Skibbe Manufacturing Co., Sodas, Mich.



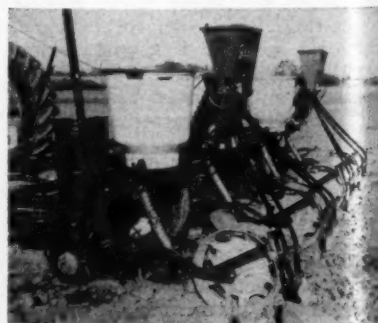
Although production of granular herbicide applicator above will be limited this year, Noble Manufacturing Co., Inc., of Sac City, Iowa, plans extensive production of all types next year.

water problem but also the aggravation of plugged nozzles. They seem to be made for the man who is in a hurry.

Granular carriers greatly simplify the problems of equipment contamination and clean-up. This should prove a real advantage to those who have several quite different crop protection problems but insufficient acreage to warrant specialized equipment for each.

Dry granular carriers are not to be confused with dusts. They can be made in several sizes, but perhaps 20 to 60 mesh would be an average.

(Continued on page 36)



Row Crop Applicators, Gandy Co., 100 Gandy Rd., Owatonna, Minn., feature spring-loaded Re-Banders which pass over field obstructions without disturbing application of herbicide.

AMERICAN VEGETABLE GROWER



Cucumber breeding has resulted in great achievements in color and uniformity of shape. Among newer strains, Challenger, a slicing cuke introduced by Lawrence Robinson & Sons, is an F₁ hybrid resistant to mosaic and downy mildew.

The New Look In CUCUMBERS

**Today's cucumbers are more shapely and better colored—
to keep them in the front of the market parade**

By **PAUL WORK**

Cornell University, Ithaca, N. Y.

JUST what that sandwich needed—a couple of slices of snappy cucumber pickle to enliven an otherwise drab and barely edible concoction of bread and meat. Apparently many people think so, for the pickle business has been growing.

Growers must furnish 15 million bushels of cucumbers to satisfy the pickle packers, compared with a 1947-56 average of under 12 million bushels and a 1923-25 average of only a little over 4 million bushels. Per capita consumption has about doubled since 1937 but the pickle tanks will still take but 4.0-pound

per capita equivalent of fresh cucumbers.

Michigan and Wisconsin were the leading states then and they still are. The gross value to growers of the 1958 pickle crop was about \$19 million. One writer gives the retail value as \$2 billion. Could be they pay more for the jar than for the cukes. Pickling cukes stand fifth or sixth in acreage and value among processing crops.

Housewives like to use fresh cucumbers for salads. They are served sliced on a lettuce leaf with various dressings, sometimes unpeeled. Sliced or diced, they often appear in tossed salads. Immerse in a piquant sour-cream dressing, they are delicious. Cukes are seldom cooked, though some persons enjoy them fried like summer squash.

But do not expect much by way of high nutritional value from cucumbers. It isn't there. The argument for their use is pleasant eating. By the same token, the over-weight need not fear, since cukes are low in calories.

Fresh cucumbers in the stores are much more enticing than a few years ago—more shapely and better

colored. This reflects the effort in breeding newer and better strains and is in turn reflected in the moderate growth in production as the years go by—to about 4 million cwt, roughly 8 million bushels in 1958. The value of the slicer crop at the farm is \$18 to \$20 million. The cucumber stands 10th to 12th in acreage, tonnage, and dollars among the vegetables for fresh market. (This list includes melons, but neither Irish potatoes nor sweet-potatoes.)

Florida has long held the lead in production of cucumbers for fresh market, "slicers," to be brief. California holds second place, with less than 40% as many as Florida, followed by New York and both the Carolinas.

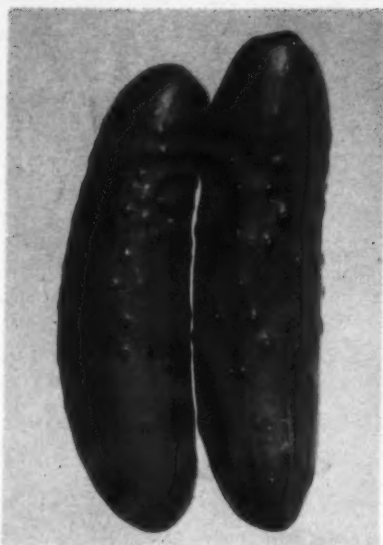
Subject to both powdery and downy mildew, scab, mosaic, and other diseases, the cucumber has been rather difficult to grow. These diseases are currently being mastered, largely as a result of careful breeding.

Along with resistance to disease, great improvements in color and uniformity of shape have been

(Continued on page 42)



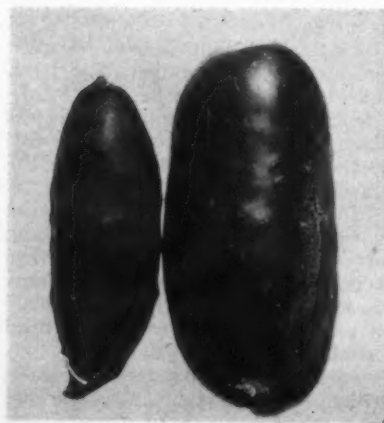
Well-packed and graded bushel of cucumbers.



Normal cucumbers shown above don't just happen. They are the result of good growing practices.



These cucumbers are deformed by "wasps" which are caused by low potash and poor pollination.



Low nitrogen and low moisture increase nubbins. Insufficient nitrogen also means lower yields.

DOUBLE YOUR

What you need to know and do to get better production

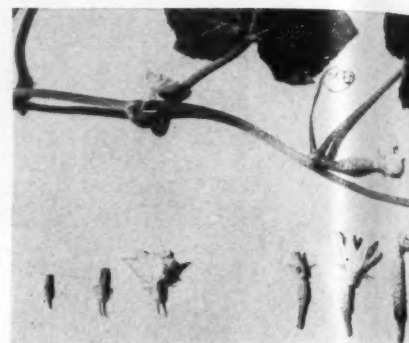
By **ALBERT A. BANADYGA**
North Carolina State College, Raleigh

IN SPITE of newer and better varieties, better fungicides and insecticides, better fertilizers, improved equipment, and greater general knowledge of plant requirements, there has been little increase in the average yields of cucumbers for the past 20 years. Why is this true? The answer is simple. The cucumber grower of today is not taking advantage of all that is available to him. Let's look at some of the things he can and should do to double his yields.

Better Stands Needed—Poor stands are one of the major reasons for reduced yields. This can be caused by poor land preparation, improper seeding, poor seeds, cold weather damage when planted too early, fertilizer injury, insect or disease damage, improper cultivation, and, of course, lack of moisture.

Poor stands reduce yields in two general ways—there are fewer plants to produce cucumbers and there are more vacant spaces in which competing weeds and grass can grow to rob the remaining plants of moisture and plant food.

Land Preparation—A year ago I talked to a grower in California who was averaging over 400 bushels per acre. Sure, he had irrigation and



Flowers on left are male, those on right are female. Without pollination, females drop off.

California climate, but in our conversation he pointed out that "most farmers are in such a hurry to get their cucumbers planted that they don't take time to 'fit their land' properly."

The land that he was preparing for planting that day looked mighty good to me, yet he had his tractor go over it again with a double disk to make sure that "it was in perfect shape and not a clod or lump in the field."

Soils and Fertilizers—Cucumbers are grown on a wide variety of soils, but a sandy loam, in good physical

'MR. CUCUMBER' GIVES HIS

FRANK STUDSTILL, of Pompano, Fla., is truly Mr. Cucumber. He ships and grows fresh cucumbers, up to $\frac{3}{4}$ million bushels a year. This year he has 4000 acres planted solely to cukes. His acreage stretches from Isle of Pines and Andros Island, B.W.I., through four districts in Florida to the Carolinas, Virginia, and western New York.

Active in supporting the Federal Marketing Agreement for Florida cucumbers, he is chairman of Florida Cucumber Committee.

To get his thinking on marketing we asked him these questions:

Question: Cucumber production seems to be largely in the hands of small growers, and the price for cucumbers, fresh or processed, is often considerably depressed. The biggest complaint from the five leading cu-

cumber states, namely, Florida, North Carolina, New Jersey, New York, and Michigan, is low prices. What do you think are the reasons for this situation?

Answer: One reason is that the chain supermarkets do the majority of the retail produce business and this is an expensive way of selling. The consumer wants her vegetables practically ready for cooking but still at a low price. It's hard to raise the price at the supermarket end, but easy to lower it at the grower end.

Question: Is fresh cucumber consumption rising or falling?

Answer: I don't know what the exact figures are but I do know that some of the younger generation of housewives scarcely knows what a cucumber is. The housewife needs to be educated about cucumbers.

AMERICAN VEGETABLE GROWER

CU

condition, organic matter, generally of well-fertilized cucumbers the pH should be about 6.0 to 6.5.

The cucumber is a heavy feeder, but it takes up nutrients rapidly, it is a vigorous grower and a quality vegetable. It is a very favorable crop to supply.

Soils should be the amount of fertilizer applied. Have soils tested every year so that the fertilizer can be applied well before the growing season.

Fertilizer stands, st



Total acreage for processing in 1957 was 129,280.

VIEW

Question: sales are falling.

Answer: processors you've got them.

Question: agreement. How is it?

Answer: in the right place to divide and save.

But the supply is many hands.

The lowest have loaded them at the store.

There are cucumbers for sale. Control. Ther

MAY, 1959

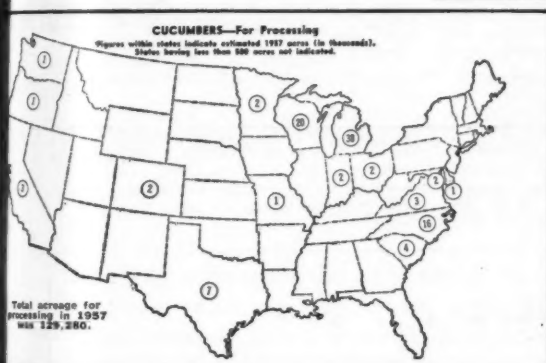
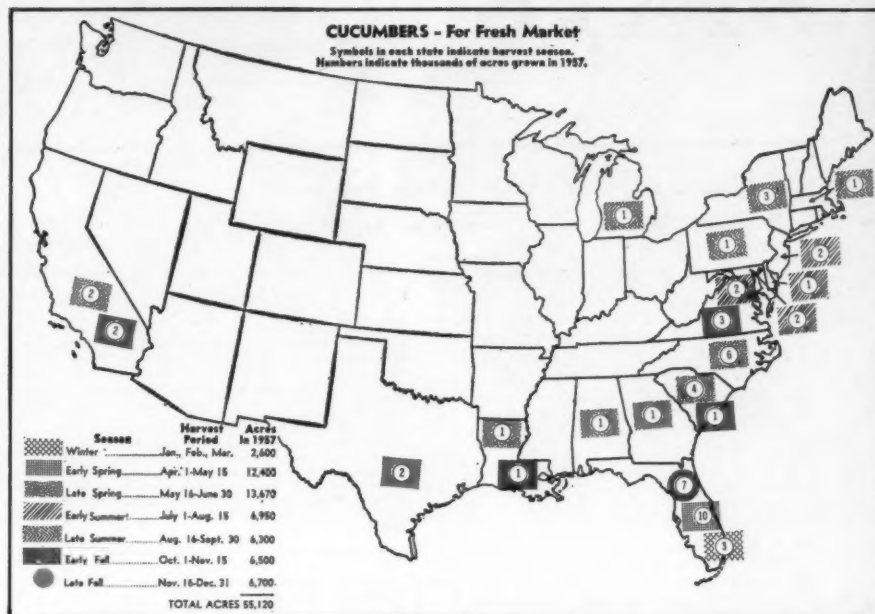
R CUCUMBER YIELDS...

condition, supplied with ample organic matter and nutrients, will generally produce the greatest yield of well-formed cucumbers. Since cucumbers are sensitive to acid soils the pH should be above 5.5—preferably 6.0 to 6.5.

The cucumber plant is not a heavy feeder, but since the plant grows rapidly, it is necessary that sufficient nutrients be available to insure vigorous growth for optimum yields and quality. Cucumbers respond very favorably to soils with an ample supply of organic matter.

Soils should be tested to determine the amount of lime and complete fertilizer needed. Most growers have soils tested in the fall of the year so that if lime is needed it can be applied and mixed with the soil well before planting time.

Fertilizer injury results in poorer stands, stunted plants, and lower



yields. Placing the fertilizer in two bands, 3 inches on each side and 3 inches below the seed, would eliminate much of this injury. Where banding equipment is not available, the fertilizer should be thoroughly mixed with the soil before planting.

Research has shown that too much nitrogen may result in excessive vegetative growth and delayed fruit setting. Insufficient nitrogen results in fewer female blossoms, poor color, misshapen fruit, and lower yields. Many growers are now side-dressing with about 20 pounds of nitrogen when the vines begin to run and then again with the same amount two weeks later. This later side-dressing is extremely important if heavy rains have leached out earlier applications.

Varieties—One variety cannot be grown successfully in all areas. New varieties, not yet recommended for a state, should be tried on a small scale and accurate performance records kept. You can't tell by merely looking at one row of cucumbers whether or not it is better than the next row. Keep records on earliness, appearance, shape, color, disease resistance, and total marketable fruits.

Disease-resistant varieties are being introduced each year. Be on the lookout for varieties resistant to diseases which are a problem in your area. A few of the more recent disease-resistant varieties of fresh market cucumbers are: Ashe and

(Continued on page 42)

VIEWS ON MARKETING

Question: How much of your sales are for pickles?

Answer: As little as possible. The processors are well organized and you've got to be sharp to deal with them.

Question: The cucumber marketing agreement in Florida is two years old. How is it working out?

Answer: The agreement is a step in the right direction. We have been able to divert cucumbers from markets and save the price to some degree.

But the big problem still remains. The supply of cucumbers is in too many hands. The fellow who quotes the lowest price gets the business. I have loaded 35 cars a day and sold them at \$6.00 a bushel. But when there are too many people quoting cucumbers the price is difficult to control. There are only about eight buy-

ers of cucumbers as represented by the big chains up north.

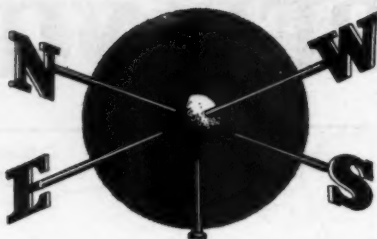
Question: What would you say is the biggest change that has taken place in marketing cucumbers in the past decade?

Answer: The demand for the poorer grades seems to have disappeared. It used to be that No. 2's would bring a fair price. But now all the buyer wants is No. 1's or better. And he wants his cucumbers in smaller and smaller containers. This raises costs, yet we can't sell as many cucumbers.

Question: What is needed most in cucumber marketing?

Answer: That's easy. Fewer sellers who are willing to hold out for a fair price. Worst enemy of the cucumber grower is the grower himself who cuts the price when there is no reason to do so.—R. T. Meister.

STATE



NEWS

- California Growers Negotiate with Processors
- New Jersey Gets Less Tomatoes, Asparagus

Growers Seek Canner Negotiation

CALIFORNIA—"The estimated 130,000 acres of processing tomatoes to be grown here during 1959 is in line with the desires of California Tomato Growers Association," says association manager Tom Stinson, Stockton, in commenting on the prospective acreage report released by California Crop and Livestock Reporting Service in March.

"This acreage can provide plenty of tomato products for America's consumers, and insure the grower and canner a reasonable profit, if tomatoes are priced in the field as they should be," says Stinson.

A prospective increase in picking costs and higher costs of growing have forced the association to ask \$23.75 per ton for round tomatoes in northern California this year.

Stinson points out that canning tomatoes are not a government price supported crop and that growers have chosen to join together voluntarily in bargaining with canners to reach a reasonable price.

California growers annually provide 60% of the nation's processing tomatoes and 40% of the nation's supply of round tomatoes is grown in northern California.

Less Tomatoes, Asparagus, Potatoes

NEW JERSEY—A reduction in acreage of the state's two most important vegetable crops is anticipated in 1959, according to New Jersey Crop Reporting Service. Garden State farmers now plan to plant 15% less canhouse tomatoes this year than last, and a reduction of 4% in asparagus acreage is indicated.

If growers' present intentions materialize, only 17,000 acres of tomatoes for processing will be grown in New Jersey this year. This is the smallest acreage since 1921 and compares with 20,100 acres in 1958.

Asparagus growers plan to harvest 31,000 acres of their crop in 1959. Last year 32,200 acres were harvested.

New Jersey plantings of white potatoes in 1959 will be down to 17,000 acres, the same as the record low of 1956. Last year's plantings totaled 18,000 acres. Sweet potato acreage will be up 6% to 17,000 acres.

Treatment For Celery Blights

OHIO—Celery growers have another potent material at their disposal to combat early and late blight, two of the worst diseases of this favorite vegetable.

Dr. J. D. Wilson, plant pathologist at Ohio Agricultural Experiment Station, Wooster, used the chemical Dyrene on test plots and achieved excellent control, even in seasons of heavy blight.

Dyrene outperformed more than a dozen other fungicides at Muck Crops Sub-station at Celeryville.

DR. SAMUEL EDGECOMBE

The vegetable industry lost a man of some distinction with the passing of Dr. Samuel Wheeler Edgcombe, 51, of Decatur, Ill. Dr. Edgcombe died in Beirut, Lebanon, in February. For the past seven years he had been dean of the faculty of agricultural sciences and professor of horticulture at the American University of Beirut.

Before going to Beirut Dr. Edgcombe had been associated with the horticulture departments of Iowa State and Utah State colleges, and with the University of Manitoba, Canada.

He also had served as vice-president and had been a director of W. Atlee Burpee Company, Philadelphia, vegetable and flower seed distributors.

Growers To Advertise

NEW MEXICO—Directors of the N.M. Vegetable Growers Association at their quarterly meeting in Artesia, announced the group is preparing to launch an extensive advertising and promotion campaign this year. "We hope to get the program under way at the beginning of the vegetable harvesting season and continue throughout 1959," said Howard Stroup, president. Funds for the program will come from membership dues.—Ernest W. Fair

Growers Stress Quality

ILLINOIS—Increased marketing and progress in improved quality, accompanied this year by some lower consumer vegetable costs due to abundance, was reported at the third annual membership meeting of Arlington Valley Growers, Inc.

The co-operative was formed in 1955 to help vegetable growers in north Cook County, northern Illinois, and southern Wisconsin. It also participates in co-operative marketing ventures with onion set growers throughout the area.

In his talk to the group, Edward Koehler, president, urged members to keep quality up so that their products would be on the preferred list at increasing demand, resulting in better prices and lower costs.

Other officers for the coming year include: Herbert Didier, Prairie View, first vice-president; Robert Wagner, Elk Grove, second vice-president; Erwin Alten, Mt. Prospect, secretary; Vernon Deeke, Palatine, treasurer.

Onion maggots have become resistant to most insecticides that previously gave effective control.

According to W. H. Luckmann, entomologist with Illinois Natural History Survey, the onion maggot has developed resistance to the "chlorinate hydrocarbons" which include chlordane, aldrin,

(Continued on page 40)

Know Your . . .

VEGETABLE SEEDS

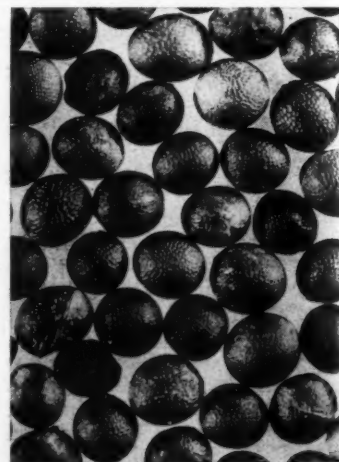
By VICTOR R. BOSWELL
U.S. Department of Agriculture

MUSTARD

MOST garden varieties of mustard belong to the oriental species *Brassica juncea*, the seeds of which are larger than those of common black mustard and smaller than white mustard. The seeds of the leafy garden type illustrated here average about 17,000 to 18,000 per ounce; black mustard averages about 35,000 to 40,000 and white mustard 4500 to 5000 per ounce. This form is grown for its leaves, not its seeds.

Seeds of garden mustard are dark brown, generally globular or nearly so, and marked with very fine shallow dimpling. This dimpling, which gives a netted appearance to the surface, seems more pronounced in the small-seeded members of the family, such as garden mustard, than in the larger-seeded forms like common cabbage and kale.

In the U. S., seed of the garden varieties of mustard is grown mainly in California and the Pacific Northwest. Acreage and production vary greatly from year to year—from about 200,000 to more than 500,000 pounds annually. Yields average from about 500 to 700 pounds per acre. Annual imports vary from about 50,000 up to 175,000 pounds. The greater part of the seed of



this type of mustard is sold to amateur gardeners through the packet trade.

Now

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Now use **SEVIN** Insecticide

for outstanding control of **MEXICAN BEAN BEETLE**

SEVIN insecticide is the new and different carbamate pesticide that bean growers have been waiting for! It controls major bean insects, and is highly effective against Mexican bean beetle. One or two applications a season often does the entire job. The cost of bean beetle control with **SEVIN** is low. The result is better yields and profits — with snap beans, dry beans and lima beans.

Hundreds of bean growers have tested **SEVIN** insecticide and found it outstanding. Experiment stations find that **SEVIN** controls all stages of Mexican bean beetle, and makes the job easier. **SEVIN** also controls leafhoppers and Lygus bugs.

SEVIN is easy to use with safety. Tests indicate you can apply it right to the day of harvest, if necessary,

without exceeding the residue tolerance. And field hands or pickers can work in the field immediately after application.

As soon as insects appear, sock 'em with SEVIN! This long-lasting new insecticide gives you efficient insect control with fewer applications.

CONTROLS MAJOR BEAN INSECTS
MEXICAN BEAN BEETLE
LYGUS BUGS • LEAFHOPPERS

Ask your supplier now for **Crag SEVIN 50W** wettable powder for sprays. Or get a dust formulation. With either product, you get excellent insect control for a bigger, better crop of beans.

SEE YOUR SEVIN SUPPLIER TODAY

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WHY Experiment?

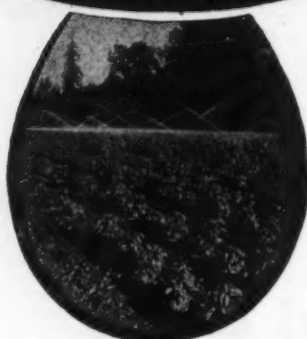


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Thru the
PIONEER
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WADE'S RAIN
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**Proved in Years of
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MARKET GARDENERS everywhere have learned the yield and profit boosting advantages of WADE'S RAIN Sprinkler Irrigation.

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cost, most satisfactory Sprinkler Irrigation you can own. **"Pay as You Grow"** ACT NOW...put WADE'S RAIN TO WORK for you this year!



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16

PAPER MULCH Rivals Plastic

Tests prove paper less costly,
easier to dispose of after use

By **NORMAN F. OEBKER**

University of Illinois

THE USE of paper as a mulch is not new; however, recent improvements are expanding the possibilities for its use in growing high quality fresh market vegetables.

In 1958, the University of Illinois conducted experiments with a new kraft paper mulch containing a fungicide, Cunilate, which prevents the paper from deteriorating before the end of the season. No molds or other fungi will grow on this paper, and it stands up well under normal treatment during laying and harvesting. It contains no materials toxic to plants.

The experiments, in which brown paper 33 inches wide was used, showed that this type mulch can be effective and profitable for both tomatoes and cucumbers. Tomato plants were transplanted through the paper and the cucumbers were seeded directly through holes in the paper, 4 feet apart in the row.

As shown in Table I, both U. S. No. 1 and marketable yields were higher on the paper mulched plots than in the other treated plots.

Cucumbers grown on paper produced much more than those not mulched and slightly more than those on plastic, shown in Table II.

- 2) It regulates the moisture supply in the soil under the plant.
- 3) It reduces losses from diseases and possibly from insects.
- 4) It regulates the soil temperature.
- 5) It keeps the fruits cleaner than when they are in contact with the soil.
- 6) It keeps the soil in good physical condition by preventing the deterioration normally caused by hard rains



With care, paper mulch can be laid by tractor.

and by movement of cultivating equipment close to the rows.

7) It prevents leaching of nutrients from the soil.

Most of these same benefits hold true for black plastic mulch. The main advantages of paper over



Fruit is protected from disease and dirt.

TABLE I
Yields of Tomatoes in Mulching Experiments
in Illinois—1958
(in 10 lb. baskets per acre)

At Carbondale, Ill.					
Variety	Treatment	Early Yield	U.S. Market- No. 1	Total Yield	U.S. Market- No. 1
Sioux	Paper	277	441	885	1410
	No paper	238	408	669	1139
	Staked	104	209	486	828
At Urbana, Ill.					
Sioux	Paper	—	612	1260	1932
	No paper	—	513	972	1446
Garden State	Paper	—	305	1118	1693
	No paper	—	226	790	1161

TABLE II
Yield of Cucumbers in Mulching Experiments
at Urbana, Ill.—1958
(in bu. of U.S. No. 1's per acre)

Ashley Variety		
Treatment	Early Yield	Total Yield
No Mulch	126	418
Black Plastic	267	632
Paper	302	661

Studies show that paper mulch gives these benefits:

1) It controls weeds, thus eliminating much cultivating and hand hoeing.

plastic are 1) the cost is lower, and 2) it is much easier to dispose of at the end of the season.

In a field where rows are 6 feet apart and 40-inch paper mulch is used, the paper would cost about \$60 to \$70 per acre. Cost of plastic would be about \$115 per acre.

If plastic is not re-used, it must be removed from the field since it does not decompose. Paper mulch breaks down in late fall, thus creating no fall and spring plowing problems.

The new mulching paper is made by Mosinee Paper Mills Company, Mosinee, Wis. The Scientific Oil Company, Chicago, Ill., supplies the fungicide, Cunilate. **THE END.**

AMERICAN VEGETABLE GROWER

THE
MAY, 1959



FARM CHEMICALS



Stunted plants, thin stands, show areas in this Florida celery field where nematodes have attacked plant roots.

Before nematodes strike, fumigate with low cost

TELONE

When you begin to see the signs of nematode damage, it's already too late to do anything about it. The time to protect high-value vegetable crops from root damaging nematodes is before you plant . . . by fumigating your soil with Telone®.

Telone is the new field fumigant especially designed to stop nematodes—especially the costly damage of meadow nematodes and cyst forming nematodes. Recommended for all soils, including muck, except the very heaviest soils, Telone will pay you back many times its cost in healthier, higher yielding vegetable crops.

If you're fumigating for the first time, *start* with Telone. If you've fumigated before, *switch* to Telone. You'll find this clean, clear formula gives maximum nematode control at a minimum cost per acre. See your Dow dealer for Telone before you make plans for planting. THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Dept., Midland, Michigan.

Get rid of grass with
DOWPON



Stop fighting a losing battle every season with tough annual and perennial grasses such as quack, Johnson, pigeon, para, Bermuda and many others. Spray them away with Dowpon®. Absorbed by leaves, Dowpon works through the plant to kill roots, too. Ask your dealer for free sample and complete information.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

MAY, 1959

17

Controls:
ANTHRACNOSE
EARLY AND LATE BLIGHT
GRAY LEAF SPOT
SEPTORIA LEAF SPOT
on TOMATOES

DITHANE M-22
 (maneb)
Fungicide

New Dithane M-22
 GIVES YOU MAXIMUM PROTECTION,
 HIGHEST YIELDS, BETTER PROFITS
 FOR YOUR TOMATO CROP.

DITHANE M-22
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New Dithane M-22
 GIVES OUTSTANDING CONTROL
 OF YIELD-CUTTING FOLIAGE
 DISEASES... IMPROVES VIGOR
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DITHANE M-22
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Use **RHOTHANE**
 insecticide to kill
 fruitworm, hornworm,
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As It Looks To Me

By JOHN CAREW

CAN you imagine General Motors not knowing what it costs to produce a Chevrolet? Or Kelloggs a box of corn flakes?

Successful businessmen know their costs and constantly analyze them. Substituting a two-cent plastic part for a four-cent metal one on a \$3000 car is normal procedure in cost-cutting.

Keeping production and sales expense records is an accepted business activity in all industries but one—agriculture. And vegetable growers are among the most guilty.

"It's too much trouble," say many growers.

"I have too many crops," claim others.

Some even ask, "What good would it do?"

Many vegetable growers raise a crop year after year at a loss without knowing it. A recent pickle growers cost-of-production survey indicated without question that hundreds of men grow this crop annually for "pleasure" alone—their yields are too low for any profit.

One vegetable grower ceased producing three of his eight crops after starting a record-keeping system.

In my opinion, growers who sell their crops at below cost of production because they don't know any better are partially responsible for the low prices in the vegetable industry. A car, appliance, or clothing merchandiser would not think of trying to buy from the manufacturer at below cost. The producers base price is firmly established.

When vegetable growers learn their costs of production and thereby establish limits to which they can or will drop their price, the entire industry—growers, buyers, and processors—will benefit.

Banded Manure—Melon growers on Muscatine Island, Iowa, have an interesting system of banding manure beneath the row. They have mechanized the long appreciated practice of putting a forkful of well-rotted organic matter under each hill.

With a middle-buster or lister,

AMERICAN VEGETABLE GROWER



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MAY, 1959

continuous trenches or furrows are made in the fall at 6- or 8-foot intervals corresponding with the row width common on each farm. In the spring before planting, manure plus fertilizer is dumped into each furrow by a manure spreader straddling the row. The spreader attachment is disconnected and shields attached to confine the load to the deep furrow. The manure is covered by plowing the soil back into the trench.

In their light sandy soil, where organic matter oxidizes rapidly, and where manure is expensive, this banding apparently pays off. The risk of the organic layer drying out is eliminated by irrigation.

Peat might be a satisfactory substitute for the manure. Lewis Peterson, superintendent of Iowa State College Fruitland Farm on the island, compared 6 tons of banded peat with the same amount of manure and obtained similar melon yields.

Soil Fumigant Injury—Certain soil fumigants, even when used according to directions, may cause poor plant growth.

Several Michigan celery growers treated soil in the fall for nematodes and observed a harmful effect the following summer. Plants were severely stunted even though no trace of the fumigant could be detected in the soil.

Research by Michigan State University soil scientists Wolcott, Shepherd, and Lucas indicated the effect was related to nitrogen. The fumigant destroyed the bacteria that convert ammonia to nitrate, and the treated soils were very low in nitrate nitrogen and high in ammonia nitrogen. The injured celery plants suffered from a lack of available nitrates and from an excess of ammonia.

This situation, more pronounced in cool wet seasons, is uncommon and should not deter growers from fumigating soils. To avoid it, however, follow these precautions:

- 1) Fumigate early in the fall when soils are warm.
- 2) Aerate the soil two weeks after treating by disking or harrowing.
- 3) Early in the season, when soils are cool, use fertilizers containing at least part of the nitrogen in the nitrate form—ammonium nitrate or nitrate of soda.

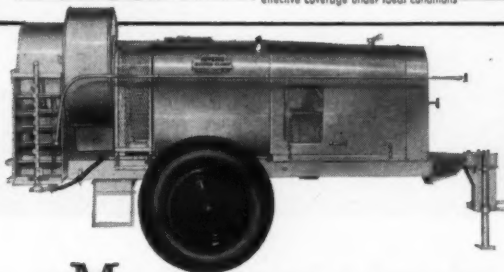
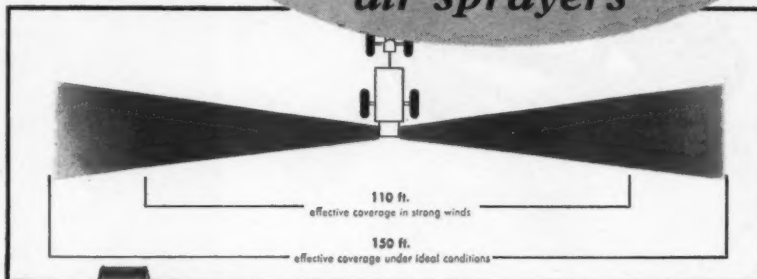
THE END.

PLASTIC GREENHOUSE PLANS

Construction details for Cornell University plastic panel greenhouse, names of suppliers of materials, films, and adhesives for plastics, and reprints of current articles on plastic greenhouses are available from AMERICAN VEGETABLE GROWER, Willoughby, Ohio, for 50 cents a set.

**Save Time
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air sprayers*

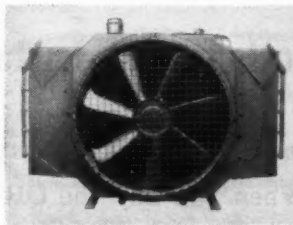


55C20-4ETFR4 shown,
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MYERS two-way air handling technique gives thorough foliage coverage over a spray swath of 110 feet, even under strong wind conditions. With ideal wind conditions you can increase effective coverage up to 150 feet. This accurately-rated performance assures you of a cleaner crop, larger yield, bigger profits.

Myers two-way sprayers reduce down the row travel, save time and minimize soil compaction.

Balanced two wheel design makes possible short row-end turning, easy towing, and convenient handling. Sprayer has 29" axle clearance, with standard 64" to 84" tread adjustment to prevent plant injury. Optional 36" clearance available. Engine, discharge, and remote air pattern controls are located within easy reach of operator.



58CA-24 Attachment

A Myers field crop air attachment can be fitted to your present high pressure sprayer, saving you spraying time, material, costs.

See for yourself

Ask your Myers dealer to show you the full coverage protection you get with a Myers "two-way" air sprayer.

Myers

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ASHLAND, OHIO

KITCHENER, ONTARIO

a complete line of sprayers and irrigation equipment



Growers praise effectiveness

and



Uses ORTHO — always has clean produce

Among the crops Clayton Searls grows near Medina, N. Y., are broccolli, beans, tomatoes, cucumbers and cabbage. He says: "I can't afford to take a chance in my vegetable operation with inferior products — that's why I'm a 100% ORTHO user. I'm on a complete ORTHO spray program and have always received excellent control of pests; my produce has always been clean."

No comp

"We haven't since we have crops," says who grow at Cherito ORTHO p Fieldman, as well as

ORTHO offers a crop protection program tailor-made for your area

Your ORTHO Fieldman knows the particular problems of your area wherever you farm. When you buy the ORTHO program you get the benefit of this technical field service, a half century of research, and all the scientific experience that makes ORTHO America's number one line of agricultural chemicals.

Scientifically trained Fieldmen located in all of the Nation's leading vegetable growing areas.

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Salt Lake City, Utah
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Dallas, Texas
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and quality of ORTHO products



No complaints from food processors

"We haven't heard a complaint from our food processors since we have been using ORTHOPHOS 4 on our row crops," say W. F. Fitzgerald (shown left) and son Wade, who grow potatoes, cabbage, tomatoes and cucumbers at Cheriton, Va. "ORTHOPHOS 4, used in the complete ORTHO program as recommended by our ORTHO Fieldman, has completely eliminated our aphid problem as well as helping in the control of other insects."



"We harvest 14 days after application"

Mr. Lawrence Powell, Production Manager of the King Farms Co., Morrisville, Penn., (shown on the right of ORTHO Fieldman Ernest Koch) has to be extremely careful with insecticides because of their mixed vegetable operation. He uses short residual materials such as VAPOTONE XX and ORTHOPHOS 4. "Each of these ORTHO products give effective control of the insect problem they are designed for and still we are able to harvest 14 days after application," says Mr. Powell.



Helping the World Grow Better

California Spray-Chemical Corp.
A subsidiary of California Chemical Co.

T. M. REG. U. S. PAT. OFF. ORTHO, ORTHOPHOS, VAPOTONE ON ALL CHEMICALS, READ DIRECTIONS AND CAUTIONS BEFORE USE.

REVOLUTIONARY PLASTIC GREENHOUSE

**Lifetime
Aluminum
Construction**



• Quick Erection
• Simplified Cover Application

IDEAL FOR Low Cost Seasonal Expansion
Temporary Storage—Merchandising

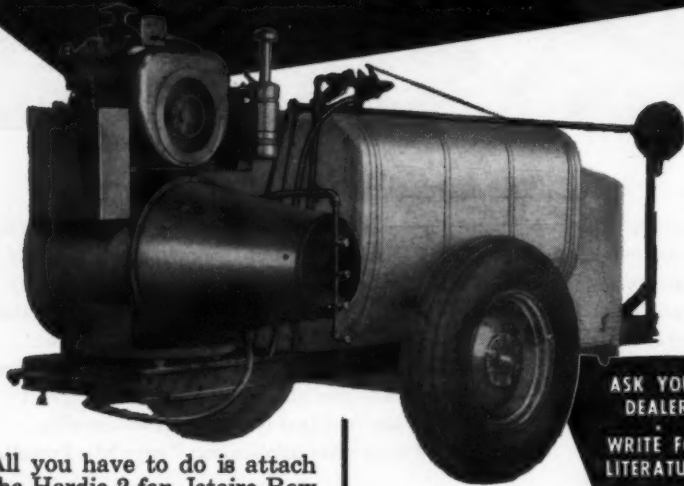
In 3 practical sizes—11, 20, and 25 ft. wide. Lengths in multiples of 8 ft., starting at 32 ft.

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**NOW— YOU CAN
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- All you have to do is attach the Hardie 2-fan Jetaire Row Crop attachment to the frame of any sprayer. It comes complete with a heavy duty air cooled engine and controls.
- Covers 14 to 20 rows of potatoes, tomatoes, etc. with a controlled blanket of mist. Sprays 100 to 120 acres per day.
- High velocity air—15,000 cfm—from two, 26 inch axial flow fans puts the spray where you want it, regardless of wind.

- Air discharge opening rotates through 220 degrees, giving absolute direction control and complete coverage on any kind of ground. You can spray wherever crops can grow.
- Easy reach controls at tractor seat.
- Adjustable air outlet in discharge housing provides control of air on plants close to sprayer.

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BEST CONTROL EQUIPMENT

• SOLD AND SERVICED



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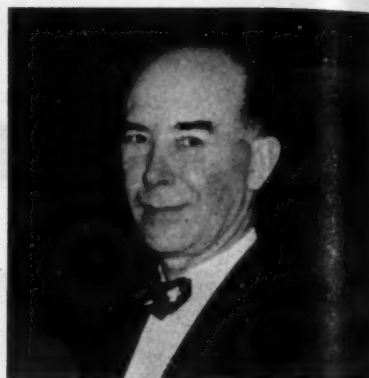
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WALTER F. PRETZER

PROMINENT OHIO GROWER DIES

WALTER F. PRETZER, prominent Cleveland, Ohio, greenhouse and vegetable grower, died unexpectedly last month at his home in Brooklyn Heights.

Internationally known in the greenhouse and garden produce industry, Mr. Pretzer was the only member of Vegetable Growers Association of America to hold the office of the presidency for four terms. He served from 1949 to 1952. He also conducted four VGAA international tours.

He was instrumental in organizing International Vegetable Growers Association and was president of the group's international chapter at the time of his death.

Mr. Pretzer was proprietor of Ruetenik Gardens, 14 acres under intense cultivation, mostly under glass. His scientific methods brought the gardens national recognition. Founded 75 years ago by Martin P. Ruetenik, father of Mrs. Pretzer, the gardens were the first greenhouses in north-eastern Ohio.

LEADERS FIGHT WAGE-HOUR PROPOSALS

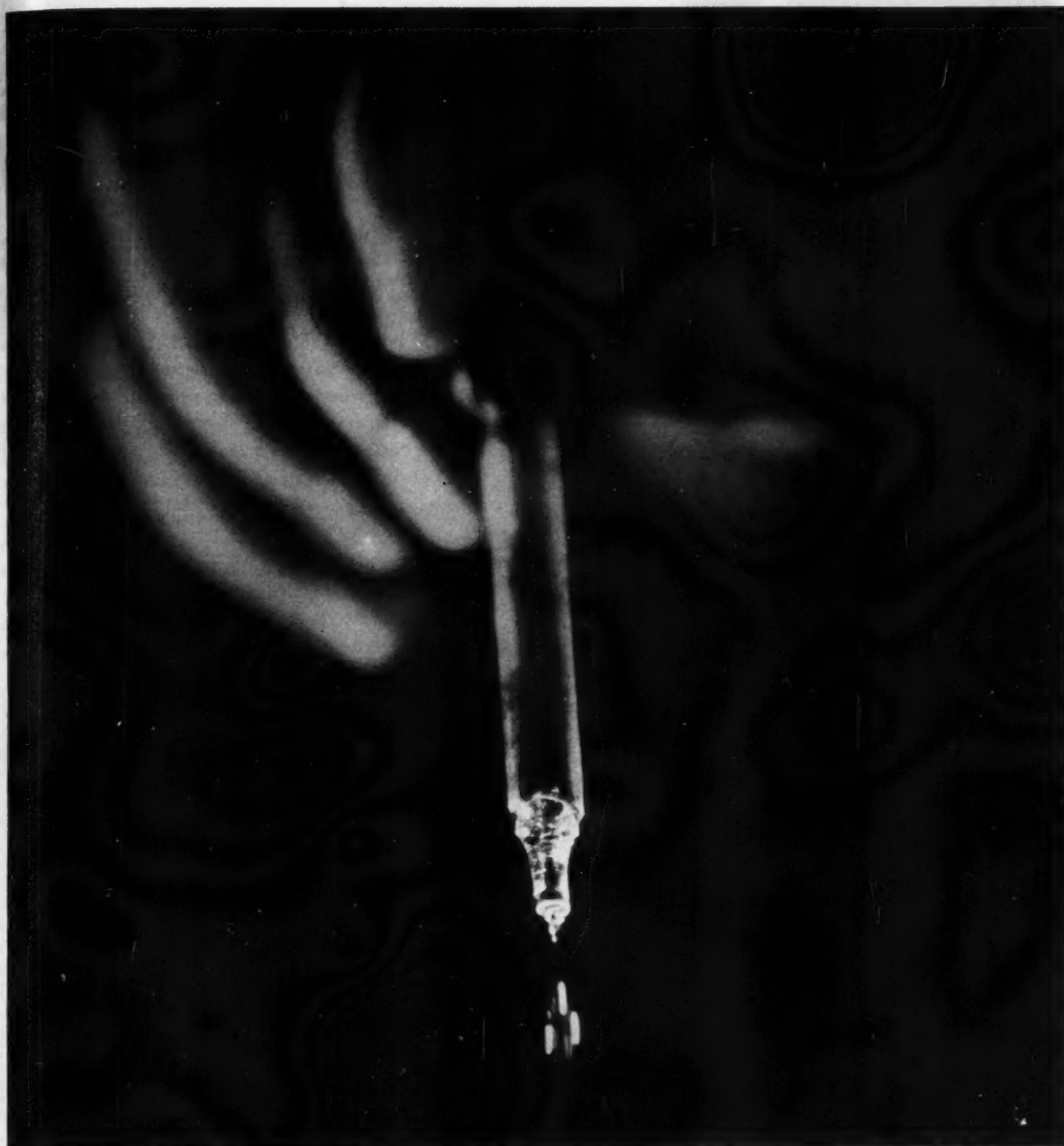
MINIMUM standards and regulations concerning employment of domestic and foreign agricultural labor have been proposed by U. S. Department of Labor.

Extension of the minimum wage and maximum hour law to agriculture, protection for farm workers in the form of compensation for injury and unemployment, enforced housing codes, safety codes, accessible health services, and continuous employment are called for by Secretary of Labor James P. Mitchell.

The American Farm Bureau Federation, Vegetable Growers Association of America, and state associations are urging withdrawal of the proposed regulations.

Real steam behind proposals to unionize farm labor is AFL-CIO.

AMERICAN VEGETABLE GROWER



Enough malathion to kill 300,000 aphids

That's why malathion continues to be the vegetable growers' number one aphicide. And aphids continue to be the vegetable growers' number one problem.

But there's more to malathion.

Malathion gives fast, sure control of many other vegetable pests. In

combination with Perthane, it offers effective, low cost control of resistant cabbage loopers. And, unlike most other phosphates, malathion can be handled safely *without* special clothing and respirator. The U.S. Public Health Service says, "... the toxicities of malathion (oral and through the skin) are less than those of DDT."

Send for Malathion Handbook, American Cyanamid Company, Agricultural Division, Dept. AV5, New York 20, New York.





Monsanto's

"Red" Emm says:

Read how these vegetable growers cut hand-weeding, saved money by spraying VEGADEX® on their fields

NEW YORK GROWER SAYS . . . "I sprayed Vegadex on my seedbeds of cabbage, broccoli and cauliflower, and found it very satisfactory. *Vegadex eliminated all hand labor*, while in 1957, seedbeds of comparable size cost considerably more because of hand labor."

V. S. Howard, Fancher, New York

MICHIGAN GROWER SAYS . . . "I treated 30 acres of celery with Vegadex as a directed spray immediately after transplanting. Used properly, *Vegadex is a real money saver*. After this season, I don't see how I can grow celery without Vegadex."

Richard Hart, Hudsonville, Michigan

LOUISIANA GROWER SAYS . . . "Vegadex saved me at least \$60.00 an acre in hand-weeding labor costs for my cabbage. And it will enable me to put another 40 acres into year-round production."

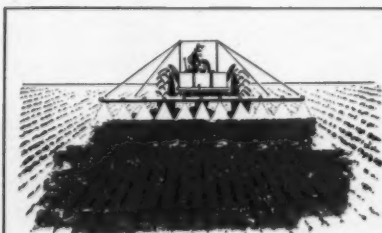
J. P. Ranatza, Belle Chasse, Louisiana

VEGADEX WILL SAVE MONEY FOR YOU, TOO! This new, spray-as-you-plant weed killer for vegetables **kills weeds as they sprout**. By practically eliminating hand-weeding, it gives you more freedom in timing the operations of your labor crews . . . a fact proved by commercial growers in their own fields.

VEGADEX CONTROLS . . . purslane, careless weed, henbit (blueweed), pigweed, crab grass, barnyard grass (water grass), bull grass (goose grass), chickweed, foxtails, annual bluegrass.

VEGADEX IS SAFE FOR . . . collards, mustard greens, turnip greens, broccoli, cabbage, snap beans, soybeans, celery, sweet corn, kale, spinach, hanover salad, brussels sprouts, lima beans, lettuce, garden beets, cauliflower, field corn.

HOW VEGADEX SAVES UP TO \$100/ACRE ON HAND-WEEDING



Spray Vegadex on the soil when you plant. It forms an invisible chemical "blanket" that covers your fields, gives full control of grassy weeds.



When weeds sprout, they touch the Vegadex "blanket" and die . . . but crops come through unharmed. And Vegadex won't build up in your soil.



Here's how you PROFIT . . . 1. You grow healthier, cleaner vegetables. 2. You can save from \$20 to \$100 per acre on hand-weeding costs.

MONSANTO CHEMICAL COMPANY, Organic Chemicals Division
Agricultural Chemicals Department, St. Louis 66, Missouri

Please send me more information on Vegadex.

Name _____

Address _____

City or County _____

State _____

FOR MORE INFORMATION ON
HOW VEGADEX WORKS IN YOUR AREA,
MAIL COUPON TODAY



AMERICAN VEGETABLE GROWER

ASP

Revolution

WHEN around farm, Canby asparagus had ore awning across the field.

These four built by Allison \$750 each. The creations to of birds: T and Parrot.

Rising pr Allison to b chines in or The harvest his farm op that he is no is showing a

Each 3-sp centrifugal c man who cor left foot, wh nates betwe direction and



ARIZONA

Glendale—Arizona Phoenix—Arizona

ARKANSAS

Fl. Smith—Old For Affiliate: Fort Sn North Little Rock

CALIFORNIA

Bakersfield—Wilbu Sunland Industries Brawley—L. H. But

Durham Chemical Chula-Vista—Wilbu Coachella—Durham Fresno—L. H. But

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Los Angeles—L. H. Durham Chemical Milpitas—Sunlan

Perrisville—Sunlan Sacramento—Sunlan Salinas—Sunlan Ir

Salinas—Spilserv San Jose—Moyer Santa Cruz—Sunla

Sebastopol—Sunlan South Gate—Los A Shonken—Sunlan

Tranquillity—Sunl Tulare—Sunland I Tulelake—Oregon

Waco—Sunland I COLORADO

Laugessent—Farm C CONNECTICUT

Shelton—Axton-Cr FLORIDA

Fort Pierce—W. R. Davison Chemical

MAY, 1959

ASPARAGUS

Revolutionizes Operations

WHEN the harvest season rolls around at the Stanley Allison farm, Canby, Ore., three motorized asparagus harvesters with bright colored awnings can be seen moving across the fields.

These four-wheeled carriages were built by Allison himself at a cost of \$750 each. The rigs, like personalized creations to Allison, bear the names of birds: The Bluebird, Red Bird, and Parrot.

Rising production costs inspired Allison to build the air-cooled machines in order to stay in business. The harvesters have revolutionized his farm operations to such a point that he is now out of the "red" and is showing a profit.

Each 3-speed, 8 hp machine with centrifugal clutch is operated by one man who controls the speed with his left foot, while his right foot alternates between two pedals, one for direction and the other for braking.

The operator takes a knife from a handy rack in the pipe structure, cuts the asparagus, and flips it into wooden boxes balanced on specially-designed racks on either side of him.

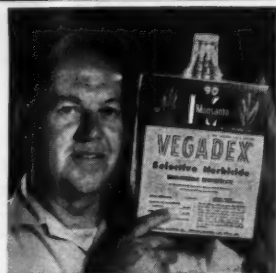
Instead of hiring 20 to 30 high school boys at harvesttime, Allison now has four full-time employees. Payroll costs have been reduced 75% and asparagus is harvested at 1½ cents per pound.

Yields, too, have been higher since the steady employees have replaced the boys, who trampled on tons of asparagus. And cost of a field truck to deliver boxes to the packing sheds has been eliminated.

The machines also are used for planting and spraying, and they work equally well on other crops, including garlic and strawberries.—Wm. Rutledge, III



Stanley Allison, of Canby, Ore., operates four-wheeled asparagus harvester he built himself.



MONSANTO'S "RED" EMM SAYS:

VEGADEX is available now through the following distributors:

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West Springfield—Eastern States Farmers
Exchange

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St. Paul—Lyon Chemicals, Inc.
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Elevators, Inc.
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Look for this sign . . . it's your assurance of Monsanto Quality

SPM PREMIUM

NEWS

... tips to make
Soil Produce More

A SERVICE OF THE POTASH DIVISION • INTERNATIONAL MINERALS & CHEMICAL CORPORATION • OLD ORCHARD ROAD, SKOKIE, ILLINOIS

Need for magnesium sulphate in fertilizer is increasing

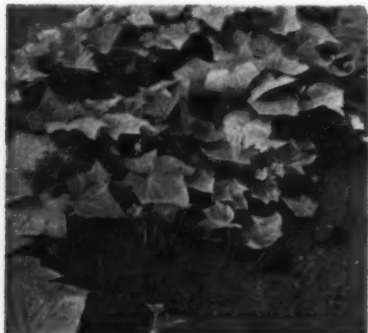
Throughout the United States, new areas — and new crops — are showing an increasing need for magnesium.

For example, five years ago the vegetable growing areas of New Jersey had only a few magnesium deficient areas. Today, deficiencies are known on 90% of the farms.

Similar troubles are showing up in western vegetable growing areas. Deficiencies have been reported in the midwest — usually thought to have plenty of magnesium. At present, these areas seem somewhat scattered. However, indications are that a need for magnesium fertilization will soon be widespread throughout the nation's agricultural areas.

There are several reasons for this increasing need for magnesium in fertilizers.

1. Older type fertilizers carried large amounts of magnesium as an incidental component. Today's highly refined fertilizers contain little or no magnesium.



2. Leaching and new cropping practices have depleted the soil.

3. Bigger crop yields, resulting from heavier applications of fertilizer, are using up the available magnesium at an accelerated rate.

4. Increased amounts of potassium in fertilizers require increased amounts of magnesium to permit crops to fully utilize potash.

Many magnesium deficiencies have not yet been reported. Many growers ... maybe you ... are even now growing sub-par crops under magnesium deficient conditions.

Symptoms of magnesium deficiency aren't visible until heavy losses have occurred — often for several years.

Relative value of magnesium ingredients in fertilizers

With the growing need for magnesium in complete mixed fertilizers, the relative values of the various magnesium sources have become more and more important.

Several researchers in various states have worked on this problem. Although there is some variation in their ratings, there is almost complete agreement on two vital points.

1. The magnesium availability of such sources as Brucite, Magnesite, and Dolomite varies greatly according to soil acidity. While Brucite and Magnesite may rate 50 or 40 under acid soil conditions (pH 5), their rating may fall to 20 and 10 respectively when the soil is only slightly acid (pH 6). Under the same conditions, Dolomite may vary from 15% available to only 2% available.

2. Under all soil conditions, sulphate of potash-magnesia is 100% available. It's the safest, most available, and most widely applicable magnesium source for mixed fertilizers.



Role of magnesium in vegetable profits

Vegetables grown in soils containing sufficient magnesium have more "snap" and brighter color. Crop matures earlier and more uniformly. Yields increase. Vegetables are larger and more uniform in size ... firm for better packing and shipping.

In recent Massachusetts field tests, carrot yields increased 26% when magnesium was added to the soil. Sulphate of potash-magnesia applied to New York tomato fields produced \$130 more tomatoes per acre than fertilizers containing no magnesium.

Phosphorus or magnesium?

Agronomists have found that what appears to be a shortage of phosphorus in some plants is really a lack of magnesium.

Although the exact relationship of these two elements has not been completely established, it is generally agreed that crops do not use phosphorus effectively unless there is adequate magnesium available.

Tests show that crops given magnesium have greater phosphorus content than crops that have not received magnesium. These crops also produced bigger yields than those to which phosphorus alone was applied.

S.P

Magnesium does fruit yields to are there.

Reason: magnesium age until you reduced quality counted losses tell-tale leaf growing vegetable.

You can choose soil to full growth containing Sulphate ... quickly available supplies crops premium results. In addition plants need. supply some fill plant requires magnesium.



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ILLINOIS

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S·P·M fertilizers . . . best yield insurance in the land

Magnesium deficiency can cripple your vegetable and fruit yields for years and never give you a hint losses are there.

Reason: magnesium-hungry soil doesn't signal shortage until you've already paid a stiff penalty in reduced quality and lowered production. Growers have counted losses in the thousands of dollars before the tell-tale leaf yellowing appears along the mid-rib of growing vegetables.

You can check magnesium losses . . . and return your soil to full growing power with mixed fertilizers containing Sul-Po-Mag . . . sulphate of potash-magnesia . . . quickly available, water-soluble magnesium that supplies crops with *complete* fertility they need for premium results.

In addition Sul-Po-Mag supplies the vital sulphur plants need. In or near industrial areas rainfall may supply some sulphur but not in amounts adequate to fill plant requirements. SPM — Sul-Po-Mag — provides magnesium and sulphur in a form plants can use.



Creators of Living Minerals

POTASH DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

Administrative Center: Skokie, Illinois

Ask your fertilizer dealer for fertilizer containing Sul-Po-Mag.

Complete fertilizers with Sul-Po-Mag can pay dividends for you . . . right now.



Quality fertilizer containing a combination of readily available magnesium and sulphate of potash obtained from **Sul-Po-Mag**

Product of International Minerals & Chemical Corp., Skokie, Ill.

Look for this identifying Seal of Approval when you buy. It's your assurance of extra-value fertilizer.

INTERNATIONAL MINERALS & CHEMICAL CORP.
Potash Division, Dept. JFG-7, Skokie, Ill.

Please send me a free copy of your "Magnesium Booklet" which discusses magnesium and Sul-Po-Mag for specific crops.

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FREIGHT
150 lbs.
or more***

CLEAR & BLACK POLYETHYLENE

Bulldog Brand

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.002				
50' x 200'	\$ 6.05	\$ 5.68	\$ 5.49	\$ 5.33
100' x 200'	11.33	10.58	10.20	9.90
150' x 200'	16.32	15.24	14.89	14.56
.004				
3' x 100'	4.56	4.30	4.16	4.04
4' x 100'	5.75	5.40	5.21	5.08
6' x 100'	8.39	7.87	7.59	7.37
8' x 100'	10.92	10.20	9.83	9.54
10' x 100'	13.42	12.51	12.06	11.71
20' x 100'	26.07	24.28	23.36	22.68
.006				
6' x 100'	11.85	11.04	10.63	10.32

Widths from 6' x 100' to 40' x 100' in both .004 and .006
Service Charge of \$1.00 per roll under 2,000 sq. ft. of Polyethylene

	3M to 12M Sq. Ft. Per Roll	12M to 25M Sq. Ft. Per Roll	25M to 50M Sq. Ft. Per Roll	50M & Over Sq. Ft. Per Roll
.0015—Black Mulch—Polyethylene				
3' x 1000'	\$15.90	\$14.88	\$14.37	\$13.95
4' x 1000'	21.20	19.84	19.18	18.60

*We ship collect; you deduct freight on 150 lbs. (net) or more and send bill of lading with remittance

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P. O. BOX 272

RED BANK, N. J., U.S.A.

PHONE - Capitol 2-4600

STOKES TOMATO PLANTS

Georgia grown,
New Jersey delivery.
Ready approx. May 1st.

Varieties:

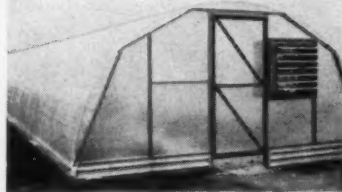
Campbell's #135
Campbell's #146
Stokescross No. 1
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Valiant (New Jersey Certified)
Rutgers (New Jersey Certified)

Prices:

\$1.00 per 100; \$6.50 per 1000
F.O.B. Vincentown, New Jersey

**FRANCIS C. STOKES
COMPANY**
VINCENTOWN, N.J.

Replace Your Hot Beds with a Rough Brothers PLASTIC HOUSE



PRACTICAL! VERSATILE! SIMPLE!

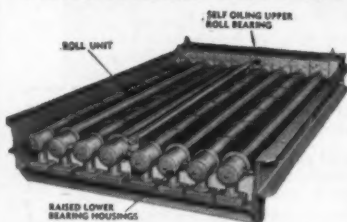
POLYETHYLENE FILM

1 1/2 mil., black, in 1000-ft. rolls, 3 ft. wide, \$30.40;
4 ft. wide, \$27.00.
2-mil., natural, in 200-ft. rolls, 4 ft. 2 ins. wide,
\$8.00; 8 ft. 4 ins. wide, \$15.00; 12 ft. wide, \$21.60.
4 mil., natural, in 100-ft. rolls, 3 ft. wide, \$6.00;
4 ft. wide, \$8.00; 6 ft. wide, \$11.20; 8 ft. wide, \$14.40;
10 ft. wide, \$18.00; 12 ft. wide, \$21.60; 14 ft. wide,
\$25.20; 16 ft. wide, \$28.80; 20 ft. wide, \$36.00; 24 ft.
wide, \$43.20; 28 ft. wide, \$50.40; 32 ft. wide, \$57.60.
6 mil. available in widths up to 32 ft.
10 per cent discount on orders over \$24.00.
20 per cent discount on orders over \$50.00.
35 per cent discount on orders over \$100.00 sq. ft.
We pay freight if check is with order.

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Manufacturers & Builders of America's
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TOP-ALL VEGETABLE-TOPPER



Quality topping that will satisfy your buyer,
high capacity topper for radishes, onions,
carrots, red beets, and turnips, in stationary
and tractor models, also roll units for combines.
Processes 15 bushels to 8 tons an hour.

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540 EASTERN AVE. • SOUTH BLOFT, ILLINOIS

PROFITABLE Roadside Marketing

By R. B. Donaldson and W. F. Johnstone

A practical handbook for the successful operation of a roadside market, based on many years' study of "on-the-farm" marketing in all parts of the country. It covers building stands, handling and storing produce, packaging, pricing, and advertising, and is illustrated with plans, charts, photographs, and drawings.

142 pages\$2.00

Sent postpaid on receipt of check or money order.

AMERICAN VEGETABLE GROWER

WILLOUGHBY, OHIO

TOMATOES

Changing Varieties

VARIETIES in use by Yolo County canning tomato growers are changing at an almost revolutionary pace. Generally this is true also for the rest of the state of California. Improved Pearson, the old standby of many years and the variety on which the California tomato canning industry was expanded, is on its way out. Soon it, like its predecessor, Early Santa Clara Canner, will become an historical name.

To further complicate the picture, 1957 was an exceptionally poor year while 1958 was an exceptionally favorable year. What will the new untried varieties do in a "normal" year? Very few of these new varieties have been field-tested for more than one year; none more than three. Authorities agree five years are necessary before a variety can be considered production tested.

Today the tomato grower not only has to decide from whom he is going to buy his seed, but also what variety or which varieties he shall grow. These varieties are new, having differing maturity dates, and different fruit qualities such as color, firmness, and size. Some resist soil-borne diseases; some do not.

Resistance, much like the word hybrid, has become a magic word. If a variety is resistant to verticillium wilt, it is automatically considered good by many growers. If resistant to both verticillium and fusarium wilts, it is considered twice as good. Many growers have overlooked the fact that resistance itself may create new and different problems. Growers will have to re-learn how to grow these varieties. Management problems will be magnified.

Most of the better tomato ground in Yolo County has had tomatoes planted many times in its crop history. The net result is that soil-borne fungus diseases have built up to damaging levels. The need for resistance to verticillium wilt and, in some cases, to fusarium wilt sparked the initial move into new varieties.

Most of the tomato acreage this year is planted to VF 6, VF 11, and CPC 2, all of which are resistant to both verticillium and fusarium wilts, and to A-1 which is resistant to verticillium wilt only. There are lesser acreages of X-1, Ace, San Marzano, Red Top, and Improved Pearson. — Melvin P. Zobel, Yolo County Farm Advisor, Woodland, Calif.

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DITHANE M-22

- ★ Better for blight control
- ★ Gives stand-by protection
- ★ Helps increase yields



Tests during 1958 in major potato states compared the blight controlling ability of DITHANE M-22 and of nabam. Late blight was severe in two of the states; early blight in one.

The conclusions reached by the scientists confirm the results obtained by the many growers who also compared the performance of DITHANE M-22 and nabam.

At intervals of seven days, DITHANE M-22 (1½ pounds/acre) gave better control of late blight than DITHANE D-14 (2 quarts/acre). At intervals of ten days the superiority of DITHANE M-22 was outstanding. Similar advantages in early blight control with DITHANE M-22 were noted.

Yields were significantly higher where better blight control was obtained with DITHANE M-22. In the plots protected at 7-day intervals, DITHANE M-22 outyielded DITHANE D-14 from 20 to 70 bushels per acre.

These facts prove that DITHANE M-22 is superior to nabam in controlling early and late blight. Equally important, DITHANE M-22 gives you *standby protection*—protection to carry your vines safely past emergencies when the interval between sprays must be lengthened. We think you will find DITHANE M-22 truly a milestone in potato blight control.

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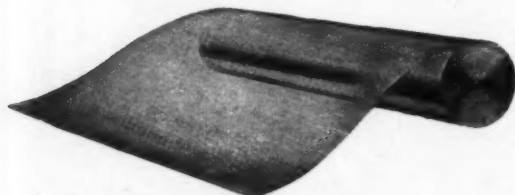
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POTATOES

A Fast Pace

EVERYTHING is moving at a fast pace these days and insect control is no exception. Since the introduction of DDT and other new high-powered insecticides, we have been plagued by an ever-increasing problem of insects developing resistance.

All the insects in a given area do not usually become resistant to an insecticide simultaneously. Lack of insecticidal control due to resistance is more or less of a gradual process in which those insects able to survive treatment and reproduce (resistant strain) eventually increase and largely replace those susceptible to the insecticide.

Potato insect investigations conducted at Virginia Truck Experiment Station on the eastern shore of Virginia have included screening trials with new insecticides against foliage pests.

During the past three years a total of 33 different chemicals has been tested in a variety of rates and formulations against the potato beetle, flea beetle, and leaf hopper. This screening program has had two main objectives: 1) to have alternate insecticides ready for use if and when potato beetles and flea beetles become resistant to dieldrin, heptachlor, or aldrin, which have replaced DDT; and 2) to find a single insecticide which will control all foliage pests—leaf hoppers and aphids included.

Although dieldrin and heptachlor gave adequate commercial control of the flea beetle in 1958, their performance was not as spectacular as in the past. Thiodan, a heterocyclic sulfur compound, was the most effective insecticide tested against the potato flea beetle.

In another test Thiodan was outstanding against the potato leaf hopper and produced significantly higher yields than DDT. Thiodan also has given excellent results on the potato beetle and potato aphid.

Thiodan has been cleared for use as a foliage spray on potatoes. Application should be at the rate of 1 quart of a 25% emulsion or 25 to 30 pounds of a 4% dust.

Sevin, Guthion, Kepone, and Dibrom have shown promise as foliage sprays in controlling potato pests but have not been cleared as yet.—R. N. Hofmaster, Entomologist, Virginia Truck Experiment Station, Norfolk.

Thiodan is manufactured by Niagara Chemical Division of Food Machinery and Chemical Corp., Middleport, N. Y.

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NEW! GRANULAR CHLORO IPC

FOR EXPANDED USE IN WEED CONTROL

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Use granular Chloro IPC for crops where liquid is not practical, such as in the post-emergence treatment of tomatoes and sweet potatoes or where water is a problem. The carrier for granular Chloro IPC is 15/30 mesh clay and it can be applied with several types of fertilizer equipment.

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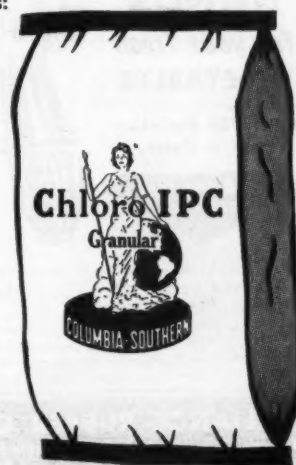
- Penetrates into the soil.
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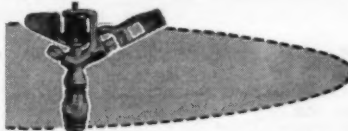
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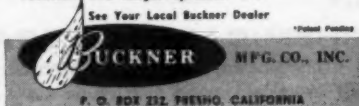


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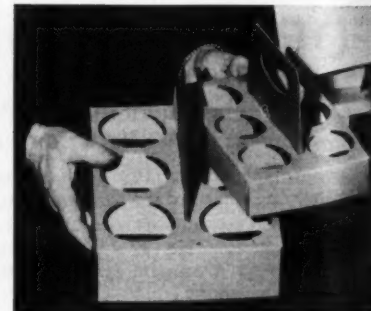
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By G. M. FOSLER

University of Illinois, Urbana



Ground bed of transite: Cut farm steel fence posts into appropriate lengths, drive into ground. Base of "T" of post goes between two sheets of transite. The spikes stuck through holes drilled in post hold assembly in place.



Merchandising practices of supermarkets may be adapted to the greenhouse, especially self-service. Specially-made, lightweight boxes with handles shown here are used by customer when making selection; plants are carried home in same container without further wrapping.



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Significant yield increases have resulted whenever market growers have used GER-PAK *Sunlight-resistant Black Mulch Film*! Not only that, but crops were improved in size and quality, rotting and weeds were all but eliminated, and certain crops matured earlier for top market value.

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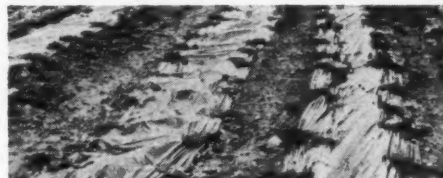
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Cucumbers (full season)	100	120
Cucumbers (first 3 pickings)	100	370
Egg Plant	100	560
Lettuce, head	100	297
Muskmelons (full season)	100	239
Muskmelons (first 2 weeks)	100	325
Peppers	100	183
Potatoes (No. 1's) early crop	100	170
Potatoes (No. 1's) late crop	100	102
Radishes (first crop)	100	300
Radishes (second crop)	100	238
Summer squash (full season)	100	133
Summer squash (first week)	100	237
Tomatoes (full season)	100	207
Tomatoes (first 2 weeks)	100	155

From an actual field test conducted in Ithaca, New York.
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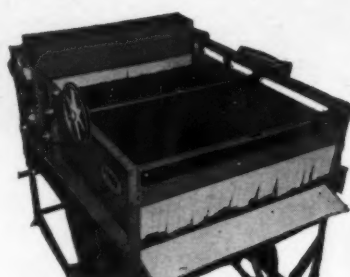
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Of Lakeland lettuce?—California.

From Ferry-Morse Seed Co., Detroit 31, Mich.; Associated Seed Growers, Inc., 205 Church St., New Haven 2, Conn.; Corneli Seed Co., 101 Chouteau St., St. Louis 2, Mo.; and Dessert Seed Co., El Centro, Calif.

Of Rhode Island Early tomato?—Massachusetts.

From Stokes Seeds, Ltd., St. Catharines, Ont., Canada; Willis S. Pino, 59 Washington St., Providence, R. I.; and Bradley's Seed Store, 131 Dorrance St., Providence, R. I.

Of Golden State A & B lettuce?—Idaho.

From Associated Seed Growers, Inc., 205 Church St., New Haven 2, Conn.; Ferry-Morse Seed Co., Detroit 31, Mich.; and Corneli Seed Co., 101 Chouteau St., St. Louis 2, Mo.

PRE-EMERGENCE SPRAY

Where can I obtain information on Alanop being used as a pre-emergence spray for watermelons and muskmelons?—South Dakota.

Write Dept. AD, United States Rubber, Naugatuck Chemical Div., Naugatuck, Conn., and ask for Booklet No. 45, Pre-emergence Weed Control on Cucurbits.

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I am interested in the new tomato varieties, Campbell 135 and 146. Where could I obtain seed or plants?—New Jersey.

Try the Campbell Soup Co., Camden, N. J. The Francis Stokes Co., Vincentown, N. J., also has both seed and plants.

CALENDAR OF COMING MEETINGS AND EXHIBITS

May 7—Greenhouse Day, Ohio Agriculture Experiment Station, Wooster.

May 21—Pacific Northwest Crop Improvement Association, annual meeting, Pendleton, Ore.

June 11-13—Idaho Grower-Shippers Association Inc., annual meeting, Sun Valley, Idaho.—Association headquarters, P. O. Box 1100, Idaho Falls, Idaho.

June 17—Annual Field Day, Truck Crops Experiment Station, Crystal Springs, Miss.

July 7-9—10th Annual Fertilizer conference of Pacific Northwest, Winthrop Hotel, Tacoma, Wash.

July 30—Orchard and Field Crops Day, Mahoning County Experiment Farm, Canfield, O.

Aug. 9-12—American Institute of Cooperation 31st annual summer session, University of Illinois, Urbana.—G. J. Jordan, Dept. of Agricultural Economics, University of Illinois, Urbana.

Aug. 11-12—Ohio Pesticide Institute, Ohio Agriculture Experiment Station, Wooster.

Sept. 13-16—Produce Packaging Association 9th annual convention and exposition, Sheraton Hotel, Philadelphia, Pa.—Robert L. Carey, Exec. Sec'y, South College Ave., Newark, Del.

Sept. 23-25—Florida Fruit and Vegetable Association meeting, Hotel Fontainebleau, Miami Beach.—Joffre C. David, Sec'y-Treas., Orlando.

Oct. 21-23—National Agricultural Chemicals Association 26th annual meeting, French Lick Sheraton Hotel, French Lick, Ind.—Les S. Hitchner, Exec. Sec'y, 1145 19th St., N.W., Washington 6, D. C.

Nov. 12—Washington State Council of Farmer Co-operatives annual meeting, Hotel Chinook, Yakima, Wash.

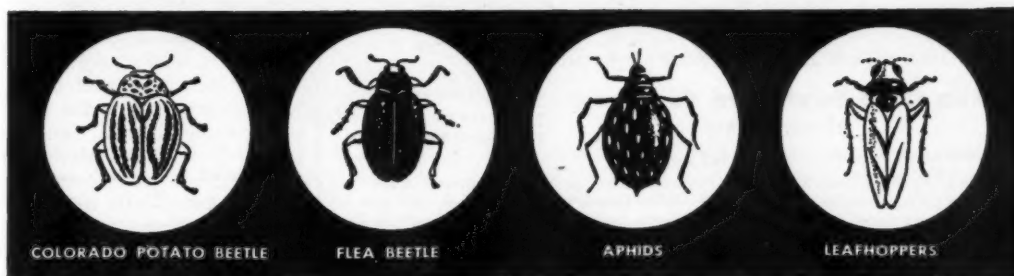
Nov. 19—New Jersey Marketing Institute annual meeting, Princeton.—Tunis Denise, Freehold, Pres., New Jersey Agricultural Society.

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A Noteworthy New Broad Range Insecticide for Potatoes

Kills'em All!



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THIODAN HAS THESE ADVANTAGES

Effective Control

Thiodan when compared with other sprays by State Experiment Stations gives better control of aphids, leafhoppers and flea beetles. Higher yields too!

Safer to Handle

Growers are glad to have a "moderately toxic" potato spray to replace toxic phosphates.

Lasting Effectiveness

Insect control lasts longer with Thiodan. Saves applications.

Easy to Use

No bad odors—no irritations—also compatible with usual potato fungicides.

THIODAN GIVES ONE SHOT CONTROL OF ALL COMMON POTATO PESTS

Thiodan is a name for potato growers to remember. It is an important new discovery. Thiodan provides broad-range use and sure-kill effectiveness against *all* potato insects. With Thiodan you get a multiple kill of several potato pests at the same time. This means new ease and convenience plus economy in protecting your crops.

Thiodan is easy to use either as a miscible or wettable powder. It mixes readily with the commonly used potato fungicides and has none of the hazards of some more toxic materials.

Thiodan has been thoroughly tested by leading experiment stations throughout the country and is being recommended for potato insect control.



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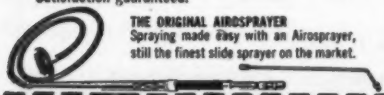
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P. O. Box 318E • NORWALK, OHIO

GRANULAR HERBICIDES

(Continued from page 10)

At this stage in the development of granular carriers, research experience has been primarily with clay and vermiculite.

Clay has the advantage of being relatively heavy and, in addition, is in rounded granules. This makes for low retention by crop leaves in post-emergence treatments. On the other hand, the weight factor makes for difficult application of clay through a duster.

Vermiculite is relatively light in weight but fairly bulky. Light weight could be a factor in application from the air. This material is fairly well adapted to use in crop dusters where broadcasting is desired. However, light weight contributes to problems in application where windy weather is the rule. Vermiculite has angular particles which cause a certain amount to stick to plant foliage, especially when the dew is still on.

Some granular formulations may appear on the market this year that will not stand up to the task of practical commercial use. Caution is urged in purchasing the product unless it has a good background of testing.

With a radically new product one might expect equipment to be a problem. Fortunately for vegetable growers, however, there has been an intense interest in controlling borers in field corn by means of granular insecticides. This large acreage potential has made it attractive for the equipment manufacturers to take an active part in the research program. Consequently many firms offer applicators that seem well designed.

One of the active projects on equipment is at Iowa Experiment Station in Ames. Engineers at Cornell University are investigating several machines that look good.

Since pumps and nozzles are not needed, applicators for granulars generally run less expensive than sprayers to do the same job.

The cost for a pound of chemical is most often asked. It is obvious that when a diluent is formulated and shipped, it costs more than water which is "free" at the farm. Thus the first expenditure is almost certain to be higher. Prices are not established yet, but some run 25 to 50% above that for the same chemical in conventional formulations.

Unit cost of the chemical is only a small part of the picture. "Free" water is a fairly expensive commodity by the time it has been hauled to the field and sprayed out. What does it cost to handle a 25-pound bag of dry material to an acre as compared with 25 gallons of water? Every grower's costs are different, but the dry

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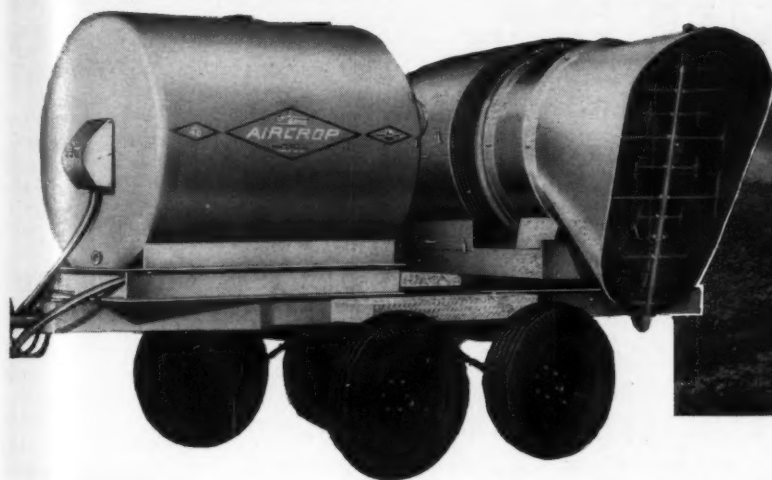


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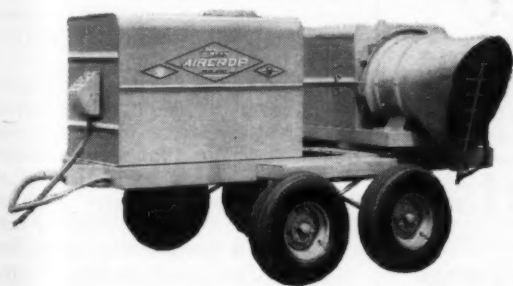
NEW *John* **BEAN** 40-RC Complete Row Crop Sprayer



Get top-rated performance and big air and tank capacities for large acreage spraying with John Bean's new 40-RC air crop sprayer. A complete spraying unit, the Model 40-RC sprays a 90 to 100 foot swath with thorough, even coverage throughout. You can spray dilute, semi-concentrate or concentrates up to 250 acres per day! John Bean's straight-through air delivery design and powerful 40-inch axial flow fan gives highest air volume at medium velocity for faster, "on time" spraying with fewer wheel rows through your crops. Simplified, easy-to-

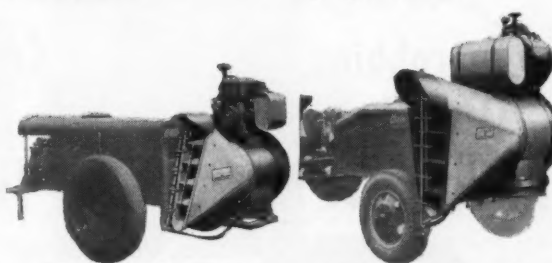
reach, hydraulic controls rotate the discharge head 210° to take full advantage of wind conditions. Movable deflectors for up and down air direction assure uniform spraying regardless of terrain. Compact control unit — right at the tractor driver's finger tips — allows positive adjustment of spray discharge and engine speed plus an instant check of operating instruments. Save time by fewer water hauling trips with the 40-RC's hydraulic jet-agitated, 500 gallon tank protected by exclusive "Bean Bond" coating.

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NEW MODEL 30-RC a complete spraying unit for medium to large acreage

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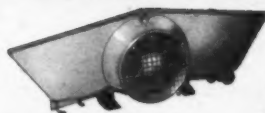
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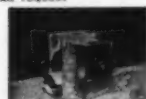
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The Gandy Row-Crop Applicator accurately meters granular chemicals from 8 oz. to 30 lbs. per acre to insure weed-free, insect-free, more profitable corn, potatoes, sugar beet and vegetable crops.

For Insect Control, it meters a 3 in. band of granular insecticide directly over the planted row and the planter wheel rolls the granules into the top 1/4 in. of soil ... the proper placement of insecticides for most effective control.

For controlling weeds in-the-row, twin, 7-in. Row-banders spread a 14-in. band of granular weed control chemicals over the row to kill the weeds and let the plants grow free ... making between-the-row cultivation easy, reducing number of cultivations.

Tandem mounting of two units provides simultaneous application of two different chemicals. Universal mounting bracket is easy to attach to all makes and models of 2, 4, 6, and 8 row crop planting equipment.

FOR BROADCAST APPLICATION OF GRANULAR INSECT AND WEED CONTROL CHEMICALS, INVESTIGATE THE GANDY HI-LO GRANULAR CHEMICAL APPLICATOR.

material will be less expensive.

Also, granulars lend themselves to band application with much greater ease than spraying — particularly where care must be taken to keep the liquid off the foliage. This alone may permit a reduction of one-half or two-thirds in the amount of chemical needed to treat a crop acre.

Everyone knows that sometimes weather adversely affects herbicide performance. How much is it worth to reduce the hazard of poor performance?

Putting all these things together leads us to believe that in a few years growers will be able to treat a crop acre for the same or at slightly less cost with granular herbicides than with sprays.

THE END.

DISEASE FORECASTING

(Continued from page 9)

downy mildew forecasts are made on the basis of a combination of cool temperatures and rainfall extending over a given length of time. When such favorable conditions occur, downy mildew can be predicted about eight days in advance of an outbreak.

Although the research of plant pathologists has been contributing to the development of methods of forecasting diseases for many years, it took the devastating outbreak of late blight on the South's tomato crop in 1946 to bring widescale forecasting into being.

That year, USDA in co-operation with various states, set up the Plant Disease Warning Service. Today this service operates to provide vegetable growers in 37 states and eastern Canada with advance information on plant diseases, giving them enough time to get protective fungicidal sprays or dusts on their crops.

Plant disease forecasts are developed region by region. Plant pathologists in the various regions develop reports that go into Plant Disease Warning Service headquarters at USDA's Plant Industry Station, Beltsville, Md. Here, these reports are compiled into warning letters that go out routinely twice a week during the growing season to pathologists in the various states and Canadian provinces. These pathologists relay the essential information to growers.

Despite the value of forecasts to growers, it is unlikely that the warning service will be extended in the near future to protect many other vegetable crops. Economics bars the way. A warning service must pay its way. That means it must deal with diseases that can cause serious agricultural losses over wide areas.

We can look forward to a future of broad forecasting and better control of vegetable diseases.

THE END.

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**knock out loopers
and cabbageworms**

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This season, stay on top of foliage insect control with modern endrin insecticide. Endrin knocks out loopers, cabbageworms, diamond-back moth larvae and other caterpillars.

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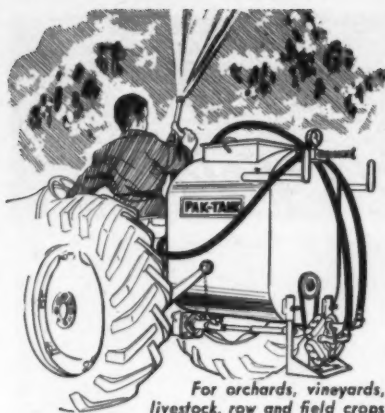
Endrin is available as a dust or emulsible concentrate. Choose the formulation that best suits your needs. No matter how you use it, endrin gives you dependable protection.

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STATE NEWS

(Continued from page 14)

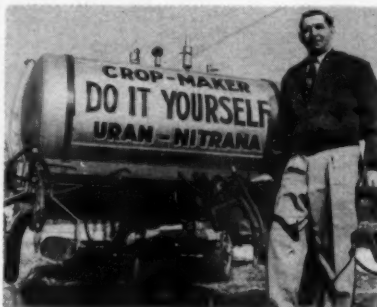
dieldrin, and heptachlor. In their place Luckmann recommends using diazinon which gave excellent control in experiments conducted last year.

Sweet Corn Promotion Launched

FLORIDA—Encouraged by the success of last season's \$50,000 sweet corn promotional campaign in northern markets, growers have again elected to assess themselves for a similar, but expanded promotion this season.

A \$75,000 campaign began early last month advertising the advantages of this superior Florida product to consumers in terminal markets east of St. Louis.

Chairman of the promotional committee, Lewis Friend, Pahokee, emphasized that this program is paid for by the growers themselves and is planned and administered by Florida Fruit & Vegetable Association. It aims to further educate consumers to the fact that Florida sweet corn is a superior product and that it is no longer only a "summer" vegetable, but is available while there is still snow on the ground in the North.



RAILROADER IS TOMATO CHAMP

Hoosier Tomato Champion James H. Gibson, Walton, Ind., side-dressed part of his winning tomato crop with slightly more than 100 pounds of actual nitrogen, Nitrana, per acre. Yield from the tomatoes that received the additional nitrogen application averaged 30 tons per acre while the official average yield from his 5.55 acres was 21.32 tons. Nitrana applications were made by the Crop Maker Soil Service of Walton.

Farming is a side line with Gibson who is a veteran Nickel Plate Railroad conductor.

Pointers For Cuke Growers

ARKANSAS—Cucumber growers have long been familiar with the destructiveness of anthracnose. Although symptoms of the disease rarely develop before the plants start vining and blooming, the crop is commonly destroyed during the first two weeks of harvest.

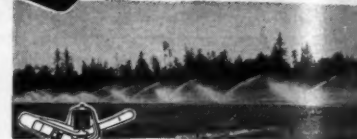
Some simple preventative measures to combat anthracnose include use of clean seed and rotation. Only western-grown seed that has been properly treated with mercuric chloride and thiram should be planted, and on ground that has not been used in the production of cucurbits in the past three seasons.

When these practices are not followed, or if the disease is introduced, a program of sprays or dusts is the only means of holding it in check.

Maneb is recommended to Arkansas growers for the field control of anthracnose. Neither spray nor dust treatments with maneb are toxic to cucumber plants if applied properly. Heavy deposits of dust, however, can injure foliage.

Zineb and Phaltan check the disease, but are inferior to maneb. Captan gives a low level of control.

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RAIN BIRD, of course!

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Width	Length	4M (.004)	6M (.006)
10'	100'	\$14.00	\$20.40
12'	100'	\$16.80	\$24.48
16'	100'	\$22.40	\$32.64
20'	100'	\$28.00	\$40.00
24'	100'	\$33.60	\$48.96
32'	100'	\$44.80	\$65.28

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Better Appearance—With M/R you can brand your produce boxes with colorful, attractive printing. Boxes

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1,000 to 9,000	1,000 \$18.25M	37#	\$13.25M
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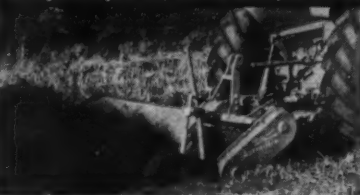
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NEW LOOK IN CUCUMBERS

(Continued from page 11)

achieved. Some of the newer ones are F₁ hybrids from inbred parents. It is remarkable how well Marketer has held its own where disease is not a problem.

One of the great changes in cucumber culture has been closing up the spacing between plants. I remember when Heinz in Michigan recommended 3 1/2 x 7 feet, one plant per hill. Land was cheap, not much was done to the crop, and few cukes escaped the eye of the picker. Today they are thinned from 6 to 15 inches in 3- to 5-foot rows, with greatly increased yield per acre.

Improvements in sorting, washing, and waxing have played a major role in keeping cucumbers in the front of the market parade. Experienced crews work from Cuba to New York as the season progresses.

Several devices have been used to speed the tedious work of picking cucumbers, especially pickles. Workers may walk and lay the fruits on a conveyor belt. Or the picklers may be carried in hammocks, laying the cukes on a belt. A Michigan machine does the whole job mechanically, picking up the vines and snapping off the little fruits to drop on a conveyor.

The cucumber is readily damaged by frosts and yet it does best in cool seasons. The pickles are mostly grown in northern states, although some are planted in the cool of early spring in the South.

Soil adaptation is very wide—from sand to clay loam, with preference for a medium loam which is easily fertilized and retains nutrients and moisture well. The growing season is short, around 60 to 70 days to first picking. Length of picking season will vary widely according to soil, weather, and disease. THE END.

DOUBLE YOUR YIELDS

(Continued from page 13)

Fletcher—resistant to downy mildew and scab; Ashley, Palomar, Santee, and Stono—resistant to downy mildew; Ohio 200—resistant to mosaic; Challenger—resistant to mosaic and downy mildew; and Hybrid Long Green and Disease Resistant Hycrop Hybrid—resistant to mosaic and spot-rot.

Seeds and Seeding—One plant every 12 inches, with rows 5 feet apart, is an ideal spacing of plants. Many growers prefer 42-inch rows, in which case the plants should be 14 to 18 inches apart in the row. Drill the seed in the row so that there is one seed every 1 to 2 inches. A week to 10 days after the plants

come up, the plants except the desired or so later, leaving only the desired thinning operation better and more

Disease and rotation is the cheapest way to avoid damage. Since over in the so cucumbers in bers or such pumpkin, was in the past year

Several devices to the seed. by either seed or treat these seed-b anthracnose treatment." treated with ment" to ro other diseases organisms.

Other diseases wilt, are car insect control such losses.

Poor stands of early damage enough dusting the first three ber beetles, s and aphids

Pollination produces sep

CRCO P. The 1958 models w attached from cen traveling Conveyor Cleaning away an and Lloyd

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GROWER

come up, thin or "block out" all plants except two or three left at the desired spacing. About a week or so later, thin again, this time leaving only one plant per "hill" at the desired spacing. This double thinning operation results in much better and more uniform stands.

Disease and Insect Control—Crop rotation is one of the easiest and cheapest ways of reducing disease damage. Since many diseases live over in the soil, it is best not to plant cucumbers in fields that had cucumbers or such related crops as squash, pumpkin, watermelon, or cantaloupe in the past year.

Several diseases may be carried on the seed. These may be controlled by either purchasing disease-free seed or treating the seed. Some of these seed-borne diseases (such as anthracnose) must be given a "wet-treatment." All seeds should be treated with a dust or "dry-treatment" to reduce damping-off and other diseases caused by soil-borne organisms.

Other diseases, such as bacterial wilt, are carried by insects. A good insect control program will reduce such losses.

Poor stands are often the result of early damage from insects. Thorough dusting or spraying, especially the first three or four weeks, to control such insects as striped cucumber beetles, spotted cucumber beetles, and aphids is extremely important.

Pollination—The cucumber plant produces separate male and female

flowers. The first flowers are usually male and they appear 5 to 10 days before the female flowers. The sticky pollen, produced on the male flowers, must be transferred to the female flowers for fruits to set and grow.

Without pollination the female flower dries up. Poor pollination results in poorly shaped fruits and lower yields. Since the pollen is sticky, it can only be transferred by insects, primarily bees. Extended periods of cool, cloudy, or rainy weather slows down normal bee activity. The practice of putting bee hives in cucumber fields to supplement the pollination by wild bees is rapidly increasing in popularity. This is especially true in large open fields which are not near a natural source of bees.

Harvesting—Cucumbers should be harvested often and clean. Production is reduced considerably by only a very small number of maturing fruits on a plant. A growing plant will not mature over 5 to 10 fruits in a season; however, if the young fruits are removed as they reach market size this same vine may produce 35 to 50 fruits.

Close supervision of picking crews is necessary to avoid excessive damage to the vines from "trampling." Workers should "pick" the cucumbers rather than "pull," and thus reduce further damage to the vines.

Handle carefully and pack what the market wants. A uniform pack returns a premium over poorly-graded cucumbers.

THE END.

YOU MUST MOVE SOIL WHY NOT MAKE MONEY, TOO?



TILLAGE IS FUNDAMENTAL, of course. Without a porous and aerated seedbed even the best seed with the highest proved germination rate, inoculated, treated with all the modern chemicals, will not thrive. The soil in which your crops grow is a complex living thing, and repays many, many times over careful treatment and intelligent conservation. Plant trash is money, when you turn it in to build humus.

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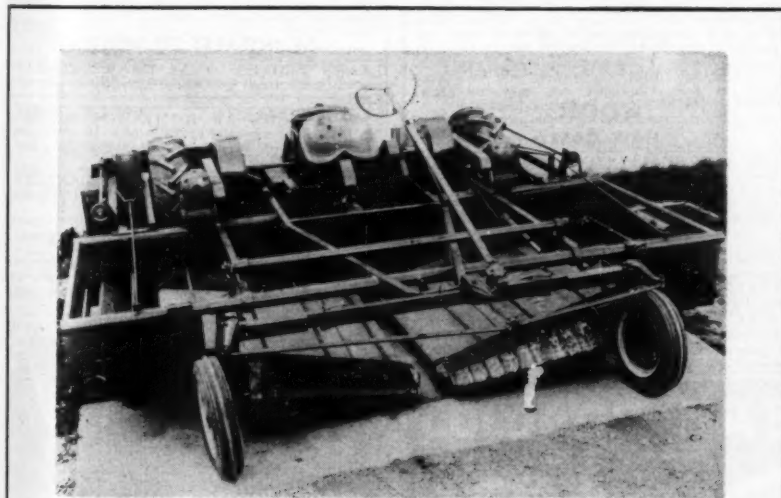
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CRCO Pickle Picker manufactured by Chisholm-Ryder Co., Inc., Niagara Falls, N.Y. The 1958 models pick one row at a time from rows planted on 7-foot centers; future models will pick from rows on 6-foot centers. Actual picking is done by tubular rollers attached to chains that carry rollers up and over picking beds on either side. Vines from center row are lifted by pickups and carried onto picking beds. Pickles drop onto traveling belt on each picking bed and are carried to delivery conveyor on either side. Conveyor takes pickles back to containers on rear platform across back of picker. Cleaning blowers remove leaves and debris. One man drives picker, second man takes away and replaces containers; 1958 models carry six filled bushel crates. like Pierson and Lloyd Gilbert, Ravenna, Mich., invented picker.

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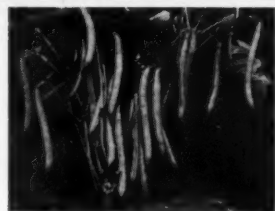
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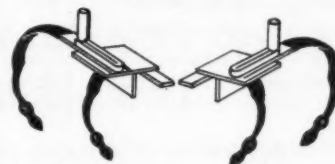
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Marketing Research Cuts Costs

MARKETING research is important—to the grower, to the handler of farm products, to the consumer, to the taxpayer generally.

Just how important it is to vegetable and fruit growers in developing more efficient or better methods of handling is expressed in millions of dollars by USDA's Agricultural Marketing Service.

Carrot shippers in Texas, for example, are saving over \$1 million annually through the use of cheaper packing made possible through marketing research on hydrocooling and development of multi-walled bags.

Maine growers at one time waxed their potatoes. The wax wasn't necessary, an AMS research project indicated, so the growers stopped—and saved themselves \$80,000 annually.

AMS research to improve packing

and handling of perishable fruits and vegetables—such as sweet cherries, pears, tomatoes, apples, plums, watermelons—is bringing savings of over \$5 million a year.

Research showed California grapes shipped out of storage needed less refrigeration than they were getting. Result—a saving of \$780,000 per year.

Improved market centers in San Antonio, St. Louis, Philadelphia, and other cities are chalking up savings estimated at a total of \$15 million each year—with more to come.

These are the results of but a few of the more than 500 research projects under way in the AMS. Each of these projects is pointed toward reducing marketing costs, improving marketing efficiency, and expanding the market for farm products.

Strengthening State Grower Groups

WHY ONE state has a strong vegetable organization and another a group that is struggling to get along is a question which stumps the experts.

The importance of a strong state association cannot be overemphasized. A state vegetable growers association keeps the growers' principal research agency, the state college, advised on what problems need the greatest attention. It provides a forum where ideas can be expressed and action taken. Often the state association sponsors other groups created to solve specific problems, such as promotion or bargaining.

Of great importance, too, is the exchange of ideas which occurs between growers at the convention, summer field day, and tour. The annual proceedings of the state association is required reading for all growers in the state and is wonderful reference to solve knotty problems. The state association tends to upgrade the level of vegetable growing.

Strong state associations make for a strong national association. Without the foundation of well-organized state groups, the national association will have shaky underpinnings.

One would think that the largest vegetable-producing states would have the largest state organizations in terms of membership, but such is not the case. Michigan has no statewide

vegetable association. Relatively few growers turn out for the annual meetings of the New York and New Jersey vegetable growers associations. The southern states, although strong producers, have very limited organizations.

Two outstanding associations are Western Growers Association in California and Florida Fruit & Vegetable Association. Both are strong, well organized groups, representing primarily grower-shippers.

The largest of the state groups

VEGETABLE CONVENTION



"Well of all things! I thought this was a free-way!"

seems to be Ohio Vegetable & Potato Growers Association. The attendance and interest of this group set new records at its Toledo meeting this year. The Ohio meeting is so highly regarded it attracts sizable delegations from Canada, Michigan, and other surrounding areas.

There are tried-and-true methods for building strong grower groups. What is needed first is leadership—a nucleus of enlightened growers who

QUOTE-OF-THE-MONTH

*Let first the onion flourish there,
Rose among roots, the maiden-fair
Wine-scented and poetic soul
Of the capacious salad bowl.*

—Robert Louis Stevenson

realize the worth of a state association and who are willing to work together to build it.

A meeting of the officers of the various state associations to exchange information about ways to gain new members and hold them would help. American Society of Association Executives can be consulted on membership and program problems.

Promising Future

WHAT changes will the increase in population bring to our nation's eating habits?

Last year the population of the world increased 70 million. This figure is nearly half the population of the United States. Population experts predict that the U. S. could have one billion people in 100 years.

With this tremendous growth, meat is expected to become a rarity. More land is required to produce meat than grain, and land certainly will be scarce.

What about vegetables and fruits? The health-giving qualities, the vitamins and minerals in vegetables will most certainly insure their production. And we are convinced that other health-giving substances, as yet undiscovered, will create great consumer interest in vegetables.

Coming Next Month

- The Role of Minor Elements in Vegetable Crop Production
- Sprinkler Irrigation
- Fertilizing Under Tomato Seed in California
- Roadside Marketing Tips

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New model 66 *John* **BEAN**® Potato Harvester cuts your costs, gives you a cleaner more marketable crop

Never before a harvester that gives you such big capacity, using so small a work crew! A tractor driver and two men are all the crew necessary under good conditions to operate John Bean's new Model 66 Harvester at full capacity—up to 10 bushels per minute—faster than 25 pickers behind a 2-row digger.

And, you'll market a cleaner, more profitable crop with the John Bean Model 66 Harvester. From the ground to the bulk box, specially coated, rubber cushioned chains gently handle the potatoes, keeping them free from bruises. Mechanical separation of clods, vines, stones and trash assure you a cleaner crop with less foreign material stored with your potatoes.

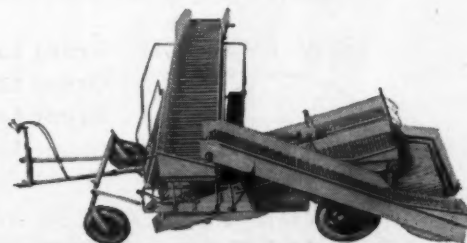
Complete, hydraulic controls are conveniently located within easy reach from the tractor seat. These smooth operating controls allow the driver to raise and lower the 60" wide digger blade and bulk loader quickly and easily for faster, more complete harvesting. Highly maneuverable, the Model 66's short turning radius permits its use in fields with small head lands. Its rugged, yet lightweight, balanced construction makes for easy pulling with a wheel type tractor.

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